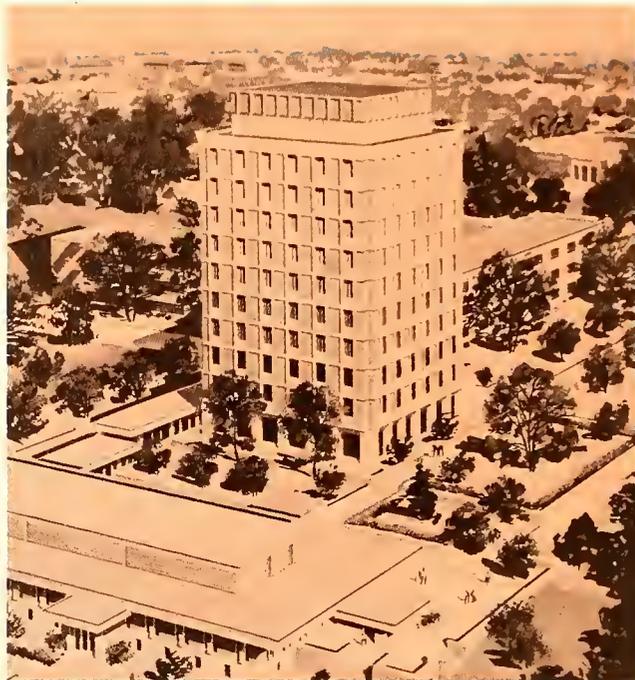




1969-1970 GENERAL INFORMATION BULLETIN
UNIVERSITY OF MASSACHUSETTS AT AMHERST



The Undergraduate Catalog of the University of Massachusetts consists of the Courses and Faculty Bulletin and the General Information Bulletin. All students are responsible for observing the rules and regulations thus published, as well as those published in the Student Handbook. The University reserves, for itself and its departments, the right to change its announcements or regulations whenever such action is deemed appropriate or necessary.

It is the policy of the University of Massachusetts that any and all acceptance of students for admission be without regard to race, color, or national origin.

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Adventure in Higher Learning

**1969-1970 GENERAL INFORMATION BULLETIN
UNIVERSITY OF MASSACHUSETTS AT AMHERST**



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The Board of Trustees

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A Word from the President



Today, we know that change is inevitable, and that change must be relevant in a positive way to the larger issues of our time. At the University of Massachusetts, we believe in the personal involvement by every one of us in an orderly, reasoned transformation of society. And we believe this personal involvement must be a specific commitment to the betterment of man.

From the beginning of history to the marvelous Apollo Odysseys, no world problem has ever been solved, no step up the ladder of civilization has ever been taken, except through the broadening of the individual's vision and intellect; except through more precise analysis and understanding of problems; except through willingness to share the mind's illumination with fellow human beings; in brief, through education.

Those of you who become members of our University community will have an exciting share in this continuing experiment. For we really are a laboratory of the science and the art of living. And it is our role here to seek the upper limits of our own potential, in order to improve our own lives and the lives of others.

All our learning is not in the classroom. It can occur equally well in debate, at a symphony, or on the football field. This University is rich in opportunities for both personal and societal achievement, for learning to live, to work, and to mature together. In this total process, students can derive enjoyment and satisfaction in the largest measure.

Cordially,

A handwritten signature in cursive script that reads "John W. Lederle". The signature is written in dark ink and is positioned above the printed name.

JOHN W. LEDERLE
PRESIDENT

Academic Calendar 1969–1970

First Semester

Friday, Sept. 5	Graduate School Registration
Monday, Sept. 8	Undergraduate Registration
Tuesday, Sept. 9	Undergraduate course changes
Wednesday, Sept. 10	First day of classes
Monday, Oct. 13	Holiday
Tuesday, Nov. 11	Holiday
Wednesday, Nov. 26	Thanksgiving recess begins after last class
Monday, Dec. 1	Classes resume
Wednesday, Dec. 3	Counselling Day
Saturday, Dec. 20	Last day of classes
Friday, Jan. 2	Reading day
Saturday, Jan. 3	Reading day
Monday, Jan. 5	Final examinations begin
Wednesday, Jan. 14	Last day of final examinations

Second Semester

Friday, Jan. 23	Graduate School Registration
Monday, Jan. 26	Undergraduate Registration
Tuesday, Jan. 27	Undergraduate course changes
Wednesday, Jan. 28	First day of classes
Monday, Feb. 16	Holiday
Thursday, March 19	<i>Monday class schedule will be followed</i>
Saturday, March 21	Spring vacation begins after last class
Monday, March 30	Classes resume
Monday, April 20	Holiday
Wednesday, May 6	Counselling Day
Thursday, May 14	Last day of classes
Friday, May 15	Reading day
Saturday, May 16	Reading day
Monday, May 18	Final examinations begin
Monday, May 25	Holiday
Thursday, May 28	Last day of final examinations
Saturday, May 30	Commencement

An Adventure in Higher Learning

How can I make the most of my college career?

This is an important question, even for students who are sure of what they want to study in college. The most common pitfall in approaching college work is the assumption that it is "just a routine"—rules, regulations, requirements, and prescribed courses of study, with a goal of scraping by with enough credits to graduate. For some students, this will always be true. But for the wise student, *routine* is supplanted by *adventure*.

The successful student does not work merely to satisfy *minimal* requirements; he does much more. If he learns early that thought is not locked within the four walls of a classroom, if he is alive with interest, if he realizes that his years in college will be the best he will ever have for stocking his mind and exercising his imagination, then his prescribed course of study becomes a springboard to a fascinating realm of knowledge and ideas that only he himself can attain.

This Bulletin explains what the University offers its students, what it requires of them, and what they must do to fulfill these minimal obligations. Beyond these basic offerings and requirements lies the real adventure—the *adventure in higher learning*.





GENERAL INFORMATION

The University of Massachusetts is the state university of the Commonwealth, founded in 1863 under provisions of the Morrill Land Grant Act passed by the United States Congress one year earlier. The University is a member of the great community of land grant colleges and state universities serving the nation as principal resources of higher education for the country's citizenry. Incorporated as Massachusetts Agricultural College in April, 1863, the institution was opened to a handful of students in 1867. Rooted in the liberal arts tradition (its early presidents were graduates of Dartmouth, Williams, Amherst, and Harvard), it has grown steadily from the four teachers and four wooden buildings available for its opening session. Reflecting the broadening interests of its students, the General Court of the Commonwealth of Massachusetts authorized a second name, Massachusetts State College, in April, 1931. Sixteen years later in May, 1947, the institution became the University of Massachusetts.

Situated in one of the most picturesque sections of the state, the University on its Amherst campus joins with its academic neighbors—Amherst, Smith, and Mount Holyoke Colleges—and newly-founded Hampshire College—in maintaining the rich tradition of educational and cultural activity associated with this beautiful Connecticut Valley region. The University's campus in Amherst consists of approximately 1,200 acres of land and 150 buildings. These structures include classroom and laboratory facilities as well as residence halls and other units.

To augment the Commonwealth's facilities at the university level, the University of Massachusetts at Boston was opened in September, 1965. The University at Boston offers educational programs comparable in quality to those available in Amherst. Day sessions, late-afternoon classes, and evening school, as well as full summer sessions all will eventually be offered in the new Boston program. The total resources of the University are dedicated to giving all qualified students full opportunities to develop their capabilities for service in a growing society.

The University's new Medical School at Worcester, founded in 1962 by an Act of the Legislature, is expected to enroll its first class in 1970.

Admissions

Applications for admission for the Amherst campus may be obtained by writing to the Admissions Office in Amherst. Applications for the Boston campus may be obtained by writing to the Admissions Office in Boston.

When to File

High School seniors are advised to file their applications in the fall of their senior year. Unless applicants have superior records, they should not submit applications until the first set of marks are recorded in the fall.

Deadline Dates

Applications must be received and complete no later than:

In-State—March 1.

Out-of-State—February 1.

Foreign—February 1.

Tests Required

The Scholastic Aptitude Test may be taken on any of the scheduled dates, although the December testing date is preferred. The March and May dates are too late for seniors, but are appropriate for juniors taking the test for guidance purposes.

Amherst campus applicants for admission are required to submit results of the Scholastic Aptitude Tests given by the College Entrance Examination Board. Although Achievement tests are not required, it is strongly recommended that all applicants submit three achievement tests, one of which should be English Composition, the other two being the applicant's choice.

All Boston campus applicants must submit SAT's and three Achievement tests including English Composition.

All postgraduate and out-of-state students are required to submit SAT's and three Achievement tests including English Composition. Foreign students must submit either SAT's or TOEFL (Test of English as a Foreign Language.)

ALL COLLEGE BOARD TEST REPORTS MUST BE SENT DIRECTLY TO THE UNIVERSITY FROM THE COLLEGE BOARD TESTING CENTER. Be certain that you request to have your scores sent to the campus to which you applied. Be certain to give the correct College Board number for your choice of campus. No action can be taken on an application until official scores have been received.

Campus Visitations

Amherst: We recognize the importance of a first hand acquaintance with the colleges you may be considering, and

we hope that you will find it possible to visit our campus for your own information and satisfaction. *An interview is, however, not part of the admission procedure.* It is physically impossible for the admissions staff to interview all applicants; therefore, personal conferences will be scheduled only if the candidate or his guidance counselor has a question which cannot be readily resolved by correspondence.

At the Amherst campus, group interviews are scheduled for in-state candidates at 10:00 a.m., and at 11:00 a.m. for non-residents on Saturdays, from September through December. Guided tours will be available at the conclusion of each group interview.

Notifications of Decisions

In most cases applicants will be notified by mid-April of the action taken on their applications. Applicants who present strong academic records, enthusiastic school recommendations, and satisfactory College Board scores will receive earlier notification. This early notification should reassure the well-qualified applicant regarding college entrance and enable the student who has selected the University as his choice of college to settle his plans. Applicants accepted at an early date, however, are under no pressure to make a final decision in regard to their choice of college before the Candidate's Reply Date. In this way the burden of multiple applications on high school guidance counselors and college admissions officers may be lessened.

Veterans Applications

Veterans must submit a regular freshman or transfer application, whichever is appropriate, and submit results of Scholastic Aptitude Tests taken within the past two years.

Veterans Affairs

The Veterans Coordinator is a staff member of the Placement and Financial Aid Services Office. All veterans affairs should clear through Placement and Financial Aid Services.

Eligible dependents of veterans who are entering the University for the first time should present a Certificate of Eligibility at registration. This may be obtained from the nearest Veterans Administration office. Board, room, and fees must be paid in advance whether the student is enrolled under the G.I. Bill or not.

Veterans' dependents who are transferring to the University from another institution or who have done summer work at another institution should present a supplemental Certificate of Eligibility at registration. This may be obtained through the veterans office at the institution last attended.

Transfers

A limited number of transfers from approved colleges may be admitted. Since applicants for such transfer exceed the number that can be accepted, they are placed on a competitive basis. Ratings will be based upon high school and college records and on the College Board Scholastic Aptitude Test, which is required of all transfers. Any student who has been previously enrolled in a college is considered a transfer and must file a transfer application form. Applicants for transfer should write to the Admissions Office for a transfer application. The University does consider for transfer only those applicants who have completed at least two years of satisfactory work at another institution. At least 45 semester credits taken in residence at the University are required of all transfers who are candidates for the bachelor's degree.

Preparatory Studies

The applicant's secondary school preparation must indicate the capacity to handle the quality of scholastic work which the University has established as its standard of achievement. A prerequisite for admission is the satisfactory completion of a four year high school course or its equivalent. A minimum of sixteen units should be offered, distributed according to the following recommendations:

English	4
College Preparatory Mathematics	3*
Foreign Language (2 years of one language)	2
U.S. History	1
Laboratory Science	1

The minimum of five other units should be offered in the areas of mathematics, science, foreign language, history and social studies, or free electives (not more than four units). These free electives afford the student the opportunity of electing other high school offerings, while at the same time covering the fundamental requirements of college preparatory work. Free electives might include, for example, music, art, typewriting, aeronautics, agriculture, home economics, etc. Students planning to major in physical sciences or mathematics should, if possible, offer two years of algebra, one of plane geometry, and one-half year of trigonometry. Preparation in analytical or solid geometry, chemistry, physics, and introductory calculus is also strongly recommended.

Students planning to pursue an engineering curriculum should offer two years of algebra, one of plane geometry, and one-half year each of trigonometry and solid geometry. Chemistry and physics are also advised. Those deficient in the mathematics requirements should plan to

* Preferably two years of algebra and one of plane geometry.

make it up during the summer prior to entrance or should expect to take five years to complete the college course.

Several of the University's schools and colleges do stipulate intermediate language proficiency as a graduation requirement. Students planning to major in these areas will find at least three years of secondary school language preparation advantageous. (See appropriate sections of this bulletin.)

Exceptional candidates whose secondary preparation is not within the framework of the above recommendations may be considered for admission. Their suitability for admission will be based on their other intellectual aptitudes and achievements and their readiness for the University curriculum.

Physical Exam

Physical examination by their personal physician is required of all entering freshmen, re-entering students and all students participating in athletics. Physical report forms for this examination will be mailed to each student with the bill for the first semester and must be completed and returned to the University Health Services 10 days before the opening of the semester. Evidence of a successful smallpox vaccination and active tetanus immunization are required.

Residence Status

As a state institution the University offers a low rate of tuition to all students entering from the Commonwealth. Eligibility for admission under the low residential rate is determined in accordance with the following policy established by the Board of Trustees.

A student must present evidence satisfactory to the Treasurer of the University that his domicile is in the Commonwealth of Massachusetts in order to be considered eligible to register in the University as a resident student. This means that he must have established a "bona fide" residence in the Commonwealth with the intention of continuing to maintain it as such.

The domicile of a minor shall follow that of the parents unless such minor has been emancipated. In case of emancipation the student, in addition to the requirements of these regulations, respecting residence, shall present satisfactory proof respecting emancipation. Minors under guardianship shall be required to present, in addition to the certification of the domicile of the guardian, satisfactory documentary evidence of the appointment of the guardian. No student shall be considered to have gained residence by reason of his attendance in the University nor shall a student lose residential preference during his continuous attendance at the University. The residence of a wife shall follow that of the husband.



The prescribed form of application for classification as to residence status must be executed by each student. Misrepresentation of facts in order to evade the payment of out-of-state tuition shall be considered sufficient cause for suspension or permanent exclusion from the University. Discretion to adjust individual cases within the spirit of these rules is lodged with the President of the University.

Orientation Fee

Members of the incoming freshman class attending the summer orientation program on the Amherst campus will pay a non-refundable fee of \$30 to cover the cost of meals, housing, testing and counseling. All incoming transfer students must attend a summer preregistration program on the Amherst campus. There is a \$15 non-refundable fee required of transfers to cover the costs of preregistration, counseling, and lodging.

Payment Due Dates

In accordance with University policy, all charges for tuition, fees, board and room rent in University residences are due and payable approximately one month prior to the date of registration of each semester. Bills will be rendered in advance and payment may best be made by mail. Students may not register until all University charges are paid.

Financial Aid

Scholarships, loans, grants, and part-time employment are available for needy and deserving students. A limited number of such awards are available to entering freshmen who have made outstanding records in high school. Applicants for financial aid must file the Parent's Confidential Statement prepared with the College Scholarship Service when the Admissions Application is sent, or no later than March 1 of the admission year. Students may also apply for certain kinds of loans, including those available under the National Defense Student Loan Program, University loans (after the first semester of the freshman year), and the Higher Education Loan Plan (available through commercial banks). Also, students may engage in part-time work after the completion of the first semester of their freshman year. Information about each of these programs may be obtained by writing to the Director of Placement and Financial Aid Services. Veterans and their dependents who are eligible for benefits may also apply to this office for information.

All of these benefits are available for students at the Boston campus where application should be made to the office of the Dean of Student Affairs.

Freshman Orientation

All students entering as freshmen must attend a three-day orientation program at a specified time during the summer prior to entrance. The program consists of testing, counseling, and pre-registration for courses to be taken during the coming semester. Guidance and placement tests are given and scored, and each student is assigned a faculty adviser who will help in the selection of courses and planning of a class schedule. On the final day of each of these periods, a special program is held for parents so that they may learn about the student's proposed courses and schedule for the fall semester, the results of the testing sessions, and the facilities and opportunities available at the University.

Grading System

Enrollment in and graduation from the University involve both quality and quantity of work. The quantity of work is measured by the credits obtained by successful completion of courses. The quality of work is measured by grades.

Each grade is equated with a quality point as noted below. The quality point average required for continued enrollment and for graduation is set by the Faculty Senate. At present the graduation requirement is a cumulative average of 1.80. Beginning with the Class of 1972, the cumulative average required for graduation is 2.0.

Grades are reported according to a letter system, as follows: A—Excellent, B—Good, C—Average, D—Passing (but not satisfactory), F—Failure, and Inc.—Incomplete.

Quality points per semester hour are assigned as follows: A, 4; B, 3; C, 2; D, 1; F, 0. To compute the semester grade point average, as well as the cumulative average, the total points earned are divided by the total credits carried. Any student whose semester quality point average falls below the cumulative requirement is warned of his status by the Registrar and informed of the rules governing dismissal. Students who achieve high averages are placed in one of three honors groups each semester, as follows: First Honors: 3.8 or higher; Second Honors: 3.4 to 3.7 inclusive; and Third Honors: 3.0 to 3.3 inclusive.

Advisory System

All freshmen select a tentative educational objective and are assigned a faculty adviser within that academic area.

In the second semester of the freshman year, each student is given an opportunity to change to a new department or to remain in his current department. In succeeding semesters, students may change to another major department by execution of a Major Change Card (available in the Registrar's Office).

It is the function of his adviser to help the student in adjusting himself to the work and life of the University. Academic progress reports issued by the Registrar's Office are sent to the advisers periodically, and the students are expected to report to their advisers from time to time to discuss their academic standing.

The University also forwards reports of academic standing to the parents. Both students and parents are encouraged to consult with the adviser whenever there are problems regarding studies or personal adjustments to college life.

Superior Students

The University regularly provides superior students with challenging educational programs extending from the freshman through the senior year. These include Advanced Placement and Special Honors Programs.

Many entering students are able to achieve advanced standing and credit for college-level courses successfully completed in their secondary schools as part of the College Entrance Examination Board Advanced Placement Program or an equivalent. The University also administers a number of its own advanced placement tests. A student who demonstrates he is proficient in a basic college subject may bypass the beginning course and go on to advanced work in the subject. Also, up to thirty semester hours of credit may be granted students of high standing who can fulfill the requirements of some of their courses through independent study.

The major feature of the program for superior students is the honors curriculum available to all who qualify.

Freshmen are eligible for the Honors Colloquium program conducted for the first three undergraduate classes. The Senior Honors Program recognizes merit and gives highly qualified students time and opportunity for independent study under closer, more personal direction than is ordinarily provided in the University curriculum. Students who complete their work satisfactorily are eligible for graduation with honors.

Motor Vehicles

Driving to and from classes is not permitted, and only students in the following categories will normally be authorized to possess and operate a motor vehicle in the Amherst area:

- a. Commuting students who live over one mile from the center of campus during the academic year.
- b. Students whose locomotive capability is so seriously impaired that they would be prevented from meeting class appointments without motor vehicle assistance.
- c. Married students residing with spouse.
- d. Students over 25 years of age.
- e. Members of the senior class.
- f. At the discretion of the Dean of Men or Dean of Women, students presenting extenuating circumstances in writing.

All motor vehicles must be registered with the University Police. In advance of arrival on campus, eligible students should obtain from the University Police Department copies of the University regulations pertaining to possession, registration and operation of motor vehicles.



Guided Tours

Through the services of the University Guide Service ARCON, guided tours are available during the regular academic year on weekdays from 1:30 to 3:30, Saturdays from 9:00 to 12:30, and Sundays from 1:00 to 3:00.



Housing

Student Housing Policy

The Amherst campus is oriented to a program that recognizes the educational advantages of both classroom instruction and extracurricular experiences. Residence hall living provides valuable exposure in this regard. Consistent with this philosophy, it is the policy of the Board of Trustees to require undergraduates to be housed in University residence halls.

Exceptions

Excepted from this policy are married students, members of fraternities and sororities having authorization within approved maximum capacities for their houses, and students commuting from the home of their parents or spouse. Others may be granted exception by the Off Campus Review Board whose members are the Area Coordinators, the Director of Housing, and representatives of the Offices of the Dean of Women and the Dean of Men. Students who are living in University residences seek permission to live off campus by submitting a request to the appropriate Area Coordinator for subsequent action by the Board. Others forward a similar request to the Central Housing Office, Whitmore Administration Building, before they appear on campus for their first registration.

Room Assignments

Residence halls are opened to sophomores, juniors, and seniors on the day before Registration. Upperclass students have the opportunity to select rooms in the spring of the

preceding year. Rooms are assigned in order of receipt of proper application. Notification of assignment is made on the fall semester bill mailed in July.

Freshmen will be notified three to five days before registration when to arrive on campus to participate in Freshmen Week activities. An effort is made to assign freshmen roommates from different geographical areas who have similar interests.

Housing Plans

The University recognizes the desirability of providing a variety of living arrangements, and toward fulfillment of this goal offers two basic systems: Residential colleges and the so-called "traditional" residence halls. Both programs offer opportunities for intellectual, cultural, and social activities.

Residence halls, dining facilities and other projects constructed by the University of Massachusetts Building Authority are self-amortizing by the collection of rents and student fees. Such facilities are constructed at no cost to the Commonwealth.

There are fifty-two residence halls at the University. They are divided into four residential areas: the Northeast Residence Area (traditional); the Orchard Hill Residential College; the Central Residence Area composed of the remaining "traditional" residence halls; and the Southwest Residence Area which is the Southwest Residential College.

Each "traditional" residence hall functions as an individual, student-organized unit. The Central and Northeast Residence Areas consist of twenty-two residence units housing 4,000 students. Occupancy of halls varies from 118 to 332. Most rooms are designed for double occupancy although some are triples. A few singles are available to counselors and upperclassmen.



A "traditional" residence hall is a house with a long-standing tradition of fellowship, unity and loyalty; a personalized tradition, differing with each residence. The "traditional" hall, by its very nature, provides opportunity for meaningful friendship in a relaxed atmosphere.

The Orchard Hill Residential College represents a planned and conscious emphasis in student residences, which is to make these residences more private, more quiet, and more academic in tone than is generally true of large residential units. Each of the units within the college has student personnel and faculty as advisers. These advisers provide cultural as well as academic participation in the units and coordinate the collegiate aspect of the academic program.

The Southwest Residential College operates on the assumption that a "college" within a university may function to provide more effective small group identities and a maximum of contact by the students and members of the faculty.

Special sections of selected courses are designated for residents of both residential colleges. Music and dramatic events, special lectures and discussions take place in residence halls. Faculty Fellows of the college and students participate equally in the planning of these. Students of the colleges are welcome to participate in as many of these activities as they find to their advantage.

Orchard Hill Residential College contains 1,300 students in four buildings: two for men, and two for women. The Southwest Residential College is a larger group comprised of 5,500 students in both high-rise and low-rise buildings.

Most residence hall rooms are provided with basic furniture which includes beds, mattresses and mattress covers, dressers, desks, desk chairs, closets and mirrors. Fireproof lamps and wastebaskets are provided in about half of the University's residence halls. Where they do not exist students are expected to provide their own. In addition to this, most residence halls have study lounges, kitchenettes, laundry facilities and vending machines. The residence halls within the residential colleges are also provided with window draperies and lounge chairs.

Each student is expected to provide his own pillow, linen and blankets. However, there is a local rental service which can supply a weekly change of bed linen and towels; blankets and a pillow may also be rented.

Certain residence halls are equipped with room telephones. Students who elect to reside in these residence halls will be charged an additional fee per semester for the basic telephone service.

Students are urged to bring a minimum of personal effects; it is also advisable for them to wait until they see their accommodations before adding to their wardrobes.

Residence Hall Staff—Area Coordinators

The residence halls are divided into four residence areas. Each area is administered by an Area Coordinator who is on the staff of the Associate Dean of Students. All residence hall staff personnel report to the respective Area Coordinator. (M = Men; W = Women; G = Graduates)

Northeast Residence Area—Office: Leach House

Crabtree (W), Dwight (W), Hamlin (M), Johnson (W), Knowlton (W), Leach (W), Lewis (W), Mary Lyon (W), Thatcher (M).

Orchard Hill Residential College—Office: Dickinson House

Dickinson (W), Field (W), Grayson (M), Webster (M).

Central Residence Area—Office: Mills House

Baker (M), Brett (M), Brooks (W), Butterfield (M), Chadbourne (M), Gorman (M), Greenough (M), Hills (M), Mills (M), Van Meter (W), Wheeler (M).

Southwest Residential College—Office: Kennedy Tower Lobby

J. Adams (M), J. Q. Adams (W), Coolidge (W), Crampton (W), Emerson (W), James (M), Kennedy (M), MacKimmie (M), Melville (W), Patterson (W), Pierpont (W), Prince (G), Thoreau (W), Washington (M), Cance (M), Moore (M).

Area Coordinators plan and direct all student personnel administrative activities for the residence halls in a given campus residential area; supervise the professional staff and student assistants in the residence halls; advise elected officers and committee chairmen in the residence halls; provide individual and group advising; perform related work as required or as may be assigned by the Associate Dean of Students. They report directly to the Associate Dean of Students.

Heads of Residence

The Heads of Residence are responsible to the Area Coordinators. They work jointly with the counselors and Housing Office in the operation of residence halls. They provide leadership and support to the residence hall staff; facilitate the work of elected house government officers and committee chairmen, serving as resource persons and discussing University expectations with them; provide individual and group advisement out of concern for the welfare of students within the residence halls; and carry out administrative responsibilities associated with the operational aspects of residence halls.

Counselors

Counselors receive direct supervision from the Heads of Residence and receive general supervision from the Area Coordinator. Their duties include: helping to establish, in the residence halls, a climate in which students will feel free to seek assistance and in which the educational goals of the University are emphasized; providing individual students with advice and counsel with respect to personal, social and academic matters; working jointly with the Head of Residence and house government in providing for the daily operation of the residence hall; interpreting and maintaining regulations with respect to student life on campus; and assisting the Head of Residence with administrative tasks in the residence halls.

Room Rent

It is Board of Trustees' policy that "charges established . . . shall not be refundable to a student after he has occupied his assigned accommodation except upon certification of the Dean of Students that such student has withdrawn from the University because of involuntary entry into military service or other reason of extreme emergency, the refund in such event to be the balance of the charge paid over that applicable to the period of actual occupancy plus one week." The University reserves the right to use student-assigned rooms for conference during regularly scheduled University vacations.

The fee for most "traditional" University residence halls is \$200 per student per semester. Students choosing

to live in one of the residential colleges pay a fee of \$225. (There are rooms in a few University residence halls available at \$225 which are not included under the residential college program.)

Apartments for Married Students

The University owns and operates two groups of apartments for faculty, married graduate and married undergraduate students; University Apartments and Lincoln Apartments. As they become available, these apartments are offered to applicants according to a predetermined order of priority and assignment procedure. It is suggested that married students apply for Lincoln Apartments as soon as possible. Due to many previously received applications, however, it may be unlikely that an apartment can be assigned by the desired occupancy date. Applications and specific information may be obtained from the Off-Campus Housing Office, Room 236, Whitmore Administration Building.

Off-Campus Housing

A card file of off-campus house, apartment and room rentals is maintained by the Off-Campus Housing Office. Also provided is information about local realtors, garden apartment developments, classified newspaper rentals, and persons seeking roommates. Every effort is made to assist students to obtain off-campus housing. However, a personal visit is usually necessary to review rental listings due to daily changes in the card file and the fact that all off-campus arrangements must be made by the parties involved. Brochures and other information may be obtained from the Off-Campus Housing Office, Room 236, Whitmore Administration Building.

Food Services

The University Food Services caters the food requirements of the University, except those services offered by the Student Union. Five dining commons serve students on a 5-day meal ticket contract. All freshmen, sophomores, and juniors residing in University residence halls are required to purchase the 5-day meal ticket. In addition, all students including seniors living in the Southwest Residential College are required to subscribe to the board plan. Students over 21 years old, prior to the start of the semester, are exempt from the plan, other than those living in the Southwest Residential College. Board entitles the student to fifteen meals per week, three meals per day, Monday through Friday.

Snack bar services are available at Worcester Commons, Greenough residence and Hampden Dining Commons during regular hours of operation.

Expenses



Amherst Campus

Expenses vary from approximately \$1,600 to \$1,700 per year for the normally economical student. First year costs are usually greater than those of the other three years and there is less opportunity for earnings. Therefore, a student is advised to have a definite plan for meeting the expenses of the first year before entering. The following estimate of a year's expenses, based chiefly upon last year's costs, includes only those items which are strictly University-related and does not include amounts for clothing, laundry, travel, etc. These costs vary slightly from year to year. Tuition for residents of Massachusetts is \$200 per year and for others \$600. The University reserves the right to change any fees without advance notice.

Tuition (residents of Massachusetts)	\$ 200.00
Room rent in University residence halls	450.00
Telephone (where available)	25.00
Board at University dining halls (5 day plan)	530.00
Athletic Fee	30.00
Physical Education Equipment Fee	10.00
Student Union Fee	30.00
Fine Arts Fee	6.00
Student Activities Tax (approx.)	30.00
Student Health Services Fee	60.00
Student Medical/Surgical Insurance, 12 months' coverage (optional)	28.00
Books, stationery, laboratory and other supplies (approx.)	200.00
Estimated total	<u>\$1,599.00</u>

INITIAL PAYMENT FOR FRESHMEN—Amherst

The initial payment for FIRST SEMESTER expenses required of freshmen at the time of fall registration is indicated below and is made up of the following items:

Tuition (residents of Massachusetts)	\$ 100.00
Room rent in University residence halls	225.00
Telephone (where available)	12.50
Board at University dining halls (5 day plan)	265.00
Athletic Fee	15.00
Physical Education Equipment Fee (men only)	10.00
Student Union Fee	15.00
Fine Arts Fee	3.00
Student Activities Fee (approx.)	15.00
Student Health Services Fee	30.00
Student Medical/Surgical Insurance, 12 months' coverage (optional)	28.00
Books, stationery, laboratory and other supplies (approx.)	100.00
Estimated total	<u>\$ 818.50</u>

These are only approximate figures. A bill will be rendered to the parent of each student prior to the beginning of the semester.

Boston Campus

The direct costs involved in attending the University of Massachusetts at Boston are appreciably lower than those for attending the University of Massachusetts at Amherst. Major difference is the cost for room and board; since the University of Massachusetts at Boston was created as a non-residential college, its students live and board at home or under non-college arrangements.

Certain other expenses which are obligatory at the University of Massachusetts at Amherst are not required for the University of Massachusetts at Boston students.

The following schedule of tuition and fees includes only those items which are strictly college-related and does not include amounts for clothing, laundry, travel, etc.

Expenditure for books, stationery, and other supplies is estimated to be \$100 for all full-time students.

SCHEDULE OF TUITION AND FEES—Boston

	<i>Full-time</i>	<i>Part-time</i>
Tuition (residents of Massachusetts)	\$200.00	\$100.00
Tuition (non-residents)	600.00	300.00
Student Activities Fee	30.00	20.00
Student Medical/Surgical Insurance, 12 months' coverage (optional)	30.00	30.00
Student Health Fee	24.00	12.00

The initial payment for first semester expenses, required of freshmen at the time of fall registration, is \$157.00 for students who are legal residents of Massachusetts and \$357.00 for non-resident students.

TUITION

As a state institution, the University offers the privilege of in-state tuition to all students entering from the Commonwealth. Eligibility for admission under the low residential rate is determined in accordance with the following policy established by the University.

1. A student must present evidence satisfactory to the Treasurer of the University that his domicile is in the Commonwealth in order to be considered eligible to register in the University as a resident student. He must also have established a bona fide residence in the Commonwealth for a period of not less than one continuous year prior to the date of acceptance at the University, and certify his intention to continue to maintain such a residence.

2. The domicile and residence of a minor shall follow that of the parents unless such minor has been eman-

ipated. In case of emancipation, the student in addition to the requirements of these regulations respecting domicile and residence shall present satisfactory proof respecting emancipation. Minors under guardianship shall be required to present in addition to the certification of domicile and residence satisfactory documentary evidence of the appointment of the guardian.

3. No student shall be considered to have gained residence by reason of his attendance in the University nor shall a student lose residential preference during his continuous attendance at the University unless he ceases to be a citizen of the Commonwealth.

4. The domicile and residence of a wife shall follow that of the husband.

5. This form of certification for classification as to domicile and residence status must be submitted by each student. Misrepresentation of facts in order to evade the payment of out-of-state tuition shall be considered sufficient cause for suspension or permanent exclusion from the University.

6. Discretion to adjust individual cases within the spirit of these rules is lodged with the President of the University.

ROOM RENT

It is the policy of the Board of Trustees that all men and women undergraduate students shall be housed in campus residence halls. Permission for certain students to commute from their parents' home or to live at sorority or fraternity houses must be obtained from the appropriate student personnel office each semester.

TELEPHONE

Students electing to live in residence halls with room telephones will pay an additional service charge for local telephone service. Toll charges will be billed directly by





the New England Telephone Company. Freshmen assigned to facilities with room telephones may request reassignment and such requests will be accommodated space permitting.

BOARD

All freshmen, sophomores, and juniors residing in University residence halls will be required to board at University dining halls. Students who are members of fraternities or sororities may be permitted to board at their respective fraternities or sororities, upon receiving written permission from their respective student personnel deans. Those not required to board on campus may eat at dining commons on a cash basis.

OTHER FEES AND PAYMENTS

Athletic Fee

Funds received from this charge are used to support comprehensive men's and women's intercollegiate programs as well as intramural programs.

Physical Education Equipment Fee

Income from this fee is used for the purchase of all clothing issued to students for use in the required physical education program, intramural athletics and general recreation.

Student Union Fee

Funds received from this charge are used to support the

Student Union and meet the operating costs of its various activities. A description of Student Union functions and activities appears on page 23.

Fine Arts Fee

Funds received from this fee are used to support a varied and comprehensive program of fine arts events for the cultural enrichment and enjoyment of the undergraduate body.

Student Activity Tax

This tax, collected by the University, is authorized annually by vote of the Student Senate and approved by the Board of Trustees. It supports student government, and an extensive and varied range of cultural and social activities for students. In addition, payment entitles each student to admission to many campus events, and includes a subscription to the daily student newspaper, the annual yearbook, the student handbook, and a student guide to the campus.

Health Services Fee

Funds received from this charge are used to support the medical, psychiatric, and health services provided by the staff of the Infirmary.

Medical-Surgical Insurance

This is an *optional* plan intended to supplement the care received by students at the Infirmary. It provides hospital, medical and surgical care on a twelve-month basis for in-

juries or illness during the school year, holidays, summer vacation and other times when the student is off campus. Students who register for the fall semester have only one opportunity to enter or reject this program each year, at the time of payment of the fall semester bill. It is also offered on the spring semester bill for new spring registrants only. Married students desiring family coverage under the plan now in existence at the University are advised to contact the Student Health Services. All candidates for and members of intercollegiate athletic teams are required by the Athletic Department to subscribe to the supplementary insurance plan.

Commencement Fee

A commencement fee of ten dollars (\$10) will be assessed all students in their last semester or term prior to receiving a degree, in order that commencement exercises and events may be self-supporting.

Special Undergraduate Students

The Special Student tuition rate is \$10.00 per credit for Massachusetts residents, up to a maximum of \$100.00, and \$30.00 per credit for non-residents, up to a maximum of \$300.00. All students must pay a \$1.00 identification card fee yearly, and students taking three or more courses a semester must pay a Student Union fee of \$15.00 and a health fee of \$25.00.

Payment Due Dates

In accordance with University policy, all charges for tuition, fees, board and room rent in University Residence Halls are due and payable prior to the date of registration of each semester. Bills will be rendered in advance with due date shown and payment may best be made by mail. Students may not register until all University charges are paid.

Scholarship Payments

It is the responsibility of all scholarship holders to see that the University is adequately notified prior to the time fee bills are prepared. Known scholarships are shown on the fee bills. If such items are not shown, deductions may not be made from the bill until satisfactory evidence has been presented to the Treasurer by the recipient.

Late Payment and Registration

Any student who does not make payment of his semester charges by the date specified may be required to pay a late payment fee of \$5.00. The process of completing arrangements for housing and board according to schedules set forth by the University is to be considered a part of general registration procedures.

Credit by Special Examination

Students receiving credit by special examination must pay \$5.00 per credit before the examination may be taken. This fee is non-refundable.

REFUNDS

A student who is suspended or expelled from the University for disciplinary reasons forfeits all rights to a refund.

Tuition and Fee Refunds

A student who leaves the University for any reason, except as specified below, before a semester is completed will be granted a pro rata refund of tuition and fees. A student who makes an advance payment and then for any reason does not attend any part of the next semester or term at the University will be given a full refund of tuition and fees. The \$15.00 matriculation payment required of new students is not refundable. A student who is involuntarily called into military service before the completion of a semester will be given a pro rata refund of tuition and fees provided that he receives no academic credit for the work of that semester. If academic credit is given, there will be no refund.

Refunds are first applied to reimburse scholarship or loan funds (up to the full amount), and any remaining amount is refunded to the student or parent.

Refund Schedule

Regular Term

- a. Within the first two weeks from the beginning of semester or term—(Registration Day)—80%.
- b. During the third week—60%.
- c. During the fourth week—40%.
- d. During the fifth week—20%.
- e. After the fifth week—no refund.

Summer Session

- a. During the first week—60%.
- b. During the second week—20%.
- c. After the second week—no refund.

Room Rent and Board Refunds

There will be no refund of prepaid room rent after the semester has begun. A student who has made an advance payment of room rent will be granted a full refund of prepaid room rent if he fails to attend any part of the next semester or term or does not reside in a residence hall or other housing. Students involuntarily called to military service may be granted a refund on a pro rata basis. Prepaid board will be refunded on a special pro rata per diem basis.

Student Personnel Services

Student Personnel Services comprise the administrative agencies with primary concern and responsibility for students and student services outside the classroom.

The Dean of Students directs and supervises the activities of all Student Personnel Services in order that they might serve most effectively to meet the broad educational goals of the University.

The Associate Dean of Students is responsible for the general administration of all residence halls and the activities program of men and women undergraduates. The Associate Dean's Office includes in its staff grouping the Housing Office, Coordinator of Student Activities, Campus Center Manager, the Area Coordinators and all Heads of Residence.

The Assistant Dean of Students for the Southwest Residential College has overall responsibility for the residence halls in the Southwest Area. He coordinates with the Southwest Master in directing programs in the Area and supervises the activities of the Southwest Area Coordinators, the Southwest Counselors and Training Consultant, the Southwest Business Office, and the Southwest Maintenance Office.

The Assistant Dean of Students—Coordinator of Student Activities administers and coordinates all student activities ranging from individual needs to organized clubs, the Classes, the Student Union Governing Board and the Student Senate. The base of operation is the Student Activities Office in the Student Union which is composed of Recognized Student Organizations (R.S.O.) financial and accounting service and the Program Office whose personnel advise and assist in the planning and execution of student projects and programs.

The Office of Non-resident Student Affairs is responsible for administrative liaison with and development of programs for non-resident students—commuters, fraternity residents, and sorority residents. The Dean of Men and Dean of Women provide these staff services.

The Dean of Men is responsible for administrative liaison with fraternities and fraternity residents, men commuters and other special activities and staff studies relating to men undergraduates as may be directed by the Dean of Students.

The Dean of Women is responsible for administrative liaison with sororities and sorority residents, women commuters and other activities relating to women undergraduates as may be directed by the Dean of Students.

The Housing Office has responsibility for the supervision of residence hall room assignment, room changes, and other University operated housing facilities, and serves as a central source of information for off-campus housing listings.

The Campus Center Manager administers and coordinates the management policies for the Student Union-Campus Center. The duties include close coordination with the Student Union Governing Board, serving on various committees concerned with student services and supervision of the Student Union staff and services. Major areas of responsibility include the University Store, Campus Center Food Services, University Conference Office, Student Union Lobby and Games Area, Campus Center Overnight Accommodations, Parking Garage and all additional services contained in the Student Union-Campus Center Complex.

The Director of International Programs, reporting to the Office of the Provost, assists and coordinates international programs, including the study abroad programs of the University of Massachusetts. Students can obtain information from the Office of International Programs on a range of overseas study programs, including those operated by other American colleges and universities and by foreign institutions. This office also has information on low-cost international travel, international student identity cards, and work opportunities overseas. Students planning to go abroad for work, study, or travel should consult the Director in making these plans.

The Foreign Student Adviser offers assistance to foreign students, faculty and staff, and should be consulted in regard to all matters pertaining to their official immigration status while in the United States. In addition, the adviser may be consulted regarding any other problems which a person from another country may encounter while at the University. These questions may include help in finding housing, help with financial matters including the authorization of foreign student loans, relations with American students and the community, and personal problems. An attempt is also made to help in coordinating community service projects, such as speaking engagements, trips to the United Nations, etc., host families and International Club activities. The Foreign Student Adviser reports to the Director of International Programs.



The Admissions Office is responsible for all administrative procedures with respect to undergraduate admissions to the University including liaison with high school guidance counselors, Community College staff personnel and other admissions officers for transfer students; passes on readmission of returning and reentering students, and sets admissions standards in coordination with the Provost and academic departments. The admissions deans also serve as advisers to the various academic year classes.

The Registrar's Office is responsible for registration (enrollment) and matriculation of undergraduate students at the University, administrative procedures relating to course loads (adding and dropping courses), section changes, course of study, withdrawals, producing grade reports, transcripts, and maintaining the permanent academic report cards.

The Counseling Center's basic aim is to support the student's efforts to develop into a mature, useful, self-fulfilled member of society. The Center's day-to-day work with the student-client involves psychological counseling on personal, social, educational and vocational problems.

All individual counseling contacts with members of the Counseling Center staff are strictly confidential. No information is released to members of the University community, to parents or to outside agencies (such as graduate schools, law enforcement agencies, or draft boards) with-

out the student's explicit authorization in advance. When the need arises, the Counseling Center staff also administers psychological tests for assessing students' abilities, interests, and personalities. Such tests are interpreted to students as part of the counseling process.

The Office of Placement and Financial Aid Services responsibilities include vocational and financial counseling and the administration of the affairs involved in aiding students to seek appropriate positions and careers; the granting of and information concerning loans and scholarships, including the various federally sponsored financial aid programs; the assignment of part-time work; the coordination of veterans' affairs; and the dissemination of information relative to military service. While providing vocational and career counseling for all undergraduates, the emphasis is on aid to seniors in planning their future following graduation and providing them with the best means for finding permanent employment. The office arranges for employers from business, industry, schools, and other areas to visit the campus to interview prospective graduates during the school year.

Cumulative student personnel records, occupational information and industrial literature libraries, preparation of credentials including personal resumes and recommendations, coupled with counseling and guidance, are provided to aid seniors and registered graduates in accomplishing their career objectives.



Health Services

The University Health Services provide guidance for the development of optimum physical, emotional, and social welfare in the University community. Most of its resources are directed toward providing health care for students. It has an active concern for matters of environmental health and safety affecting the welfare of students, faculty, employees, and visitors.

The center of activities is the Infirmary. Here are located an outpatient department, with supporting X-ray, laboratory, and physical therapy facilities, and eighty beds for the care of students who need hospitalization.

Recognition of the specific emotional needs of students in an educational environment has led to the provision of an active mental health program including diagnostic and limited treatment services. Orthopedic services can be arranged as the need arises. Hospitalization for conditions requiring more specialized care than is available in the Infirmary can be arranged at the Cooley Dickinson Hospital in Northampton.

Any care rendered on the campus by members of the staff of the Health Services is provided without additional charge to those who have paid the student health fee. The provision for care off campus can be arranged by the Health Services, but the cost of this care is a responsibility of the student. A supplementary insurance program has been developed to provide for most hospital and surgical care not available at the Infirmary. This optional

program is available in September only. Cost provides coverage for twelve months.

All candidates for and members of intercollegiate athletic teams are required to subscribe to the supplementary insurance plan offered by the University.

The Health Services work closely with the School of Physical Education in adapting the facilities of the School to the individual needs of students for restricted or remedial activity. The health status of participants in the athletic program, both intramural and intercollegiate, is under Health Services supervision; and care is always available for any injuries resulting from these activities.

Students are urged to consult a member of the Health Services staff as soon as any indication of a physical or emotional disorder is evident. It is much easier for the staff, and less time-consuming for the student, to rectify minor difficulties before they have become sources of disability.

Students who are under medical supervision prior to entrance are urged to have their physicians write the Health Services, giving reports and instructions in appropriate detail. In brief, the Health Services attempt to provide all students with a coordinated and comprehensive program of health supervision formerly provided by their family physicians.

All visits and information gained as a result of visits to the Health Services are treated as confidential and no such information will be released without the express permission of the student.

Student Activities

The Campus Center Complex

The Campus Center Complex is composed of the new Murray D. Lincoln Campus Center building, the Parking Garage and the existing Student Union. It houses the offices of the Assistant Dean of Students and his Student Activities staff and the Campus Center manager and his staff. The Activities staff provides services in programming activities and maintaining and accounting various student funds. Service departments of the Center include: the University Store which carries a complete stock of books and sundry supplies; Food Service which provides snacks, lunches and catered meals; Games Area; Cashiers Office; Post Office; Ticket Office; and Barber Shop. The Lobby Counter, the campus information center, includes a sundry counter, night and weekend check-cashing service, coat checking, record library, lost and found, and room scheduling. Lounges, meeting rooms, reading rooms, art galleries, music listening booths, etc., are available for student and general campus use.

The Campus Center Governing Board, which is comprised of undergraduate and graduate students, alumni, faculty and staff, determines policy for the operation of the Center. A standing committee of the Board, the Program Council, which is composed wholly of students, selects, plans and executes all Center activities in art, music, dance, movie, special events, etc. Any student may apply for membership on the Council.

Construction and operating costs of the Center are met from student fees and income generated from general operation, particularly the Food Service Department, the University Store and the Conference Department. The Conference Department is an important contributor to general income since a fee is paid to the Center for every person attending a conference at the University. In addition conferences increase business in the University Store and Food Service Departments.

Student Activities Office

The Student Activities Office in the Campus Center is the headquarters for Recognized Student Organizations (R.S.O.) and the Program Office. It provides a banking, bookkeeping, and auditing service for student organizations, as well as resources and counsel on program planning, budgeting, purchasing, contracting, and most other aspects of the affairs of student organizations. Advisers are available to work closely with students and faculty advisers of student organizations to help them attain their goals

and best serve the University. Detailed information may be obtained by contacting the Student Activities Office.

Participation in extracurricular activities offers opportunities to further the broader objectives of a college experience. The knowledge, skills and judgment developed in the classroom can be tested and refined through use in the organizational setting. More than fifty "professional" clubs exist on campus as a means of extending classroom interest through closer contact with members of the teaching staff and representatives of the professions. Student government offers a forum for debate on matters of importance to the entire University community. For those interested in communications, there are several campus publications as well as an FM radio station. Experience in music and drama is available in a number of forms. Totally, there are more than 380 special interest groups at the University.

Such activities can be a profitable means of fostering maturity and general enrichment in those students who wish to take advantage of all that the University can offer. In encouraging participation in these activities, the University asks only that students plan their time well, in order that they may profit as much as possible from a total University program devoted, first and foremost, to academic studies. Formal recognition for outstanding extracurricular achievement is given at an annual Student Leaders' Night held in the Spring.

Student Government

All undergraduate students of the University are members of the Student Government Association (SGA). SGA is divided into three parts: Student Senate, Class Administration, General Court of Justice (Men's and Women's Judiciary).

The Student Senate has vested in it all legislative functions of student government to the end of promoting the welfare of the student body. Any member of the undergraduate student body in good standing is eligible to run for election to a Student Senate seat based on certain election requirements. Stockbridge students are represented on the Stockbridge Student Senate.

The Senate usually meets once a week, with considerable committee work throughout the week. (Non-senators may be appointed to Senate committees by the Senate President.) Meetings are open to any member of the University community.

In addition to Student Senate, there are provisions in the constitution and bylaws of each residence unit for elected house governments.

Students (both senators and non-senators) are also represented on a number of Faculty Senate and University committees and subcommittees. Appointments are made

by the President of the Student Senate.

All students are encouraged to actively exercise the opportunity to participate in the deliberations of the Student Senate and student government, and to express their views on issues of concern to their Senate representative or through the appropriate Senate committee. All students should share in the responsibility of supporting and upholding their student government.

Faculty Senate Committee on Student Affairs

The Bylaws of University Faculty Senate provide for a Committee on Student Affairs as follows:

- (a) Its composition shall be eight members of the Faculty, nine undergraduates, and the Dean of Students *ex officio*.
- (b) It shall review and make recommendations on all non-academic discipline, student rights, dormitory life, and all other matters of common concern to the faculty and students which are not within the scope of responsibility of some other regular or special committee of the Senate. It shall advise the Dean of Students and recommend policies for the operation of Student Personnel Services. It shall promote and protect the academic freedoms and civil liberties of students and shall hear complaints alleging the suppression, abridgement, or abuse of such freedoms and liberties. The Committee may also consider the policy aspects of extracurricular activities, but this authority shall not be construed as granting the Committee supervisory powers over the Student Senate or over other recognized student organizations.

Student Life Committee

The Student Life Committee studies in depth administrative interrelationships with students; develops action plans, position definitions, and programs for future development which are consistent with the best goals of all the Student Personnel Services for student life; and makes recommendations to the Dean of Students.

Student Organizations

Campus Publications

The Collegian. Daily newspaper published by undergraduates.

Index. The University yearbook.

Caesura. Art and literary publication.

Spectrum. Publication of essays, short stories, and poems.

Yahoo. Humor magazine.

Engineering Journal. Quarterly open to science and engineering students for the publication of technical articles and essays of general interest.

University Music Organizations

Campus music organizations provide experience in musical and allied activities for performers and technicians with various kinds of interest and ability. The University Symphony Orchestra, bands, and the choral organizations are in the Department of Music. Membership is open to all students, faculty, alumni, and others in the area community.

University Symphony Orchestra. Membership is open, by audition, to all University students. The orchestra has developed rapidly into a large ensemble capable of performing the standard symphonic literature and contemporary works as well. Students who exhibit exceptional performing ability are given an opportunity, through competition, to appear as soloists with the orchestra in performance of major solo literature. Occasionally, distinguished guest artists are invited to appear. Membership in the University Symphony can constitute academic enrollment in a University course, and thus carry with it University credit toward requirements.

University Symphony Band. The University Symphony Band is open by audition to all University students. The band's extensive repertoire includes contemporary works for band and for wind ensemble, as well as the standard symphonic band literature. Enrollment in the Symphony Band allows a student to earn credit toward University graduation requirements.

University Marching Band. The University Marching Band is open by audition to all University students. Enrollment in the band allows a student to earn credit toward University graduation requirements. In addition, students accepted for membership earn exemption from required physical education during the football season.

University Varsity Band. The University Varsity Band is open to all University students. It is designed to offer instrumental participation to students whose schedule or lack of experience prohibits membership in the more advanced group.

University Chorus. The University Chorus, with a membership of more than one hundred voices, rehearses and performs oratorios and other large choral works in cooperation with various instrumental groups from the Music Department.

University Chorale. The University Chorale specializes in the preparation of the finest a cappella choral literature to be performed in concert on campus and on tour. In ad-

dition to the large performing chorus, students may take part in a madrigal group or other small vocal ensembles.

Operetta Guild. The Guild produces standard works from the repertoire of American musical theater. Membership is open to persons interested in an art form which provides experience in many elements of musical performance as well as in staging, acting, and other theater activities. The Operetta Guild is a R.S.O. organization.

Concert Association. The association offers students an opportunity to stage professional concerts and recitals and to administer a large-scale annual enterprise involving major financial and promotional concern. The association each year presents distinguished attractions including national symphony orchestras, outstanding operatic performers, instrumental virtuosi, and other offerings. The Concert Association is a R.S.O. organization.

The University of Massachusetts Theatre

The University of Massachusetts Theatre, an activity of the Department of Speech, schedules several plays a year, a program designed to give every student the opportunity of seeing living examples of the dramatic heritage of Western civilization in all forms and styles. The productions serve as the laboratory for all students majoring in theatre; however, all phases of work on these productions are open to all students regardless of school or major.

University Debate Union

The University Debate Union is an academic and co-curricular activity of the Department of Speech. Each year debate teams research and debate an intercollegiate proposition dealing with an important international or national problem. The debaters attend tournaments at colleges and universities throughout the United States. In addition to intercollegiate debating, the debate union also sponsors audience debates and tournaments for high school and college students. The union is open to all students on campus.

Professional and Special Interest Clubs

Approximately fifty professional clubs, established in connection with the various major courses of study, stimulate students' professional interest in their chosen fields and afford opportunity for discussion of technical subjects of mutual interest. Among the special-interest groups are the Debating, Sport, Parachute, Equestrian, Ski, Outing and Political Clubs.

Student Honor and Service Societies

Adelphia. The men's senior honor society brings together the men in the University who are leaders in various branches of student activity. The society strives to preserve valuable traditions and customs and to advance

the University in all ways. Membership is limited to a total of twenty men from the senior and junior classes.

Mortar Board. This national Honor Society for senior women has been represented on this campus by the Isogon Chapter since 1955. Selection of not less than 5 or more than 25 women is made on the basis of scholarship (B cumulative average), leadership, and service to Alma Mater. The purpose of the society is to promote University loyalty, to advance the spirit of service and fellowship among University women, to maintain a high standard of scholarship, to recognize and encourage leadership, and to stimulate and develop a fine type of college woman.

Maroon Key. The men's sophomore honorary-service society, composed of twenty-five students recognized for leadership abilities and University services.

Scrolls. Women's sophomore honorary-service society, composed of twenty students elected at the end of the freshman year.

Revelers. A group of upperclassmen chosen to promote and encourage freshman interest and participation in campus activities.

Alpha Phi Omega, national service fraternity. The Kappa Omicron Chapter conducts an active program of service to the campus and the community. It is dedicated to the principles of leadership, fellowship and service. The chapter conducts or supports various projects (Used Book Exchange, Homecoming Concert, Annual Foreign Students Convocation, United Nations Week, Peace Corps) in the interests of making contributions to brotherhood throughout the world.

Gamma Sigma Sigma. A national service sorority based on the ideals of service, friendship and equality—open to all University women.

University Guide Service—ARCON

The University Guide Service, ARCON, was inaugurated in the spring of 1965 to represent the University, disseminate information about the University and to conduct tours for visitors and official guests.

In the conviction that ARCON must uphold the highest standards of responsibility and leadership, the fraternity men of the junior class who compose this organization are interviewed and screened in the spring preceding their year of voluntary service by a group of faculty, administrators and students. After their selection, the guides undergo intensive training which imparts to them critical information and facts about the University.

Fraternities and Sororities

Social fraternities on the campus include Alpha Epsilon Pi, Alpha Tau Gamma (Stockbridge School), Beta Kappa Phi, Alpha Sigma Phi, Delta Chi, Pi Lambda Phi, Kappa Sigma, Lambda Chi Alpha, Phi Mu Delta, Gamma Alpha Kappa

(Colony), Theta Sigma Phi (Colony), Phi Sigma Kappa, Q.T.V., Sigma Alpha Mu, Sigma Phi Epsilon, Tau Epsilon Phi, Tau Kappa Epsilon, Theta Chi, Zeta Nu. An Inter-Fraternity Council, consisting of representatives of these fraternities, has charge of rushing and all general matters dealing with fraternity life. A cooperative organization—The Fraternity Managers' Association—pools the financial resources of all sixteen fraternities for purposes of effecting orderly, economical purchasing and accounting procedures. A professional fraternity manager administers the association's program.

Sororities include Alpha Chi Omega, Chi Omega, Iota Gamma Upsilon, Kappa Alpha Theta, Kappa Kappa Gamma, Lambda Delta Phi, Pi Beta Phi, Sigma Delta Tau, Sigma Kappa, Sigma Sigma Sigma, and Sigma Sigma Alpha (Stockbridge School). The Panhellenic Council, made up of representatives from the sororities, supervises rushing and other sorority matters.

Intercollegiate and Intramural Athletics

The University believes there are educational advantages in a well-organized intercollegiate and intramural sports program. In intercollegiate athletics, the University is represented by teams in all the leading sports, including football, soccer, cross-country, basketball, swimming, wrestling, indoor and outdoor track, hockey, rifle and pistol, baseball, tennis, golf, lacrosse, gymnastics, and skiing.

The University also supports a broad program of intramural activities, in which all students are encouraged to participate. The range of sports available each year includes the team sports of touch football, basketball, softball, volleyball. Individual activities include tennis, bowling, badminton, golf, squash, and handball.

The University Intercollegiate Athletic Program is supervised by the University Athletic Council and is composed of the following members: four faculty members appointed by the Faculty Senate, three alumni representatives appointed by the directors of the Alumni Association, the Executive Director of the Alumni Association, and ex officio, the Director of Athletics.

The University is a member of the Yankee Conference, the National Collegiate Athletic Association, the Eastern College Athletic Conference and the Association of New England Colleges for Conference on Athletics.

Alumni Association

The Associate Alumni is the general alumni organization of the University. The association maintains headquarters at Memorial Hall, erected by alumni and friends in honor of those men of the University who died in World War I. The association publishes a magazine, *The Massachusetts*

Alumnus, as the alumni publication of the University. According to its by-laws, the corporation is constituted for the purpose of promoting the general usefulness of the University; of cultivating mutual regard among its graduates and former students; and of strengthening their attachment to their Alma Mater. Under sponsorship of the University of Massachusetts Building Authority, composed of alumni who volunteered their services, nineteen residence halls, two faculty apartment centers, and a Student Union Building have been constructed on the campus. The governing body of the Associate Alumni consists of its officers and a board of directors. Six directors are elected each year and serve a term of four years. All graduating seniors become members of, and contributors to, the association at graduation, according to a tradition set by the Class of 1940.

Religious Activities

The University gives support to the religious life of its students in various ways. It affords the use of University facilities for student groups of all faiths. It cooperates with the official agencies of the three faiths most largely represented at the University by recognizing the contributions of their privately supported chaplains and by giving them facilities and privileges for their work.

On campus, the religious life of Catholic students is enriched by the program of the Newman Club. Jewish students participate in services and activities sponsored by the B'nai B'rith Hillel Foundation. Protestant students join in worship, study, and service planned by the Protestant Christian Council, with the guidance of the Protestant Chaplains' Council.

Other religious groups such as the Inter-Varsity Christian Fellowship, the Orthodox Club, the Christian Science Organization, and the Lutheran Club also meet regularly on campus and students interested in their programs are welcome to attend. The Campus Religious Council provides a cooperative inter-relationship among the campus religious groups and serves the whole University community by sponsoring the Annual Blood Drive, book and clothing drives, the Religious Handbook for Freshmen, and ecumenical discussion and action.

The local Protestant and Catholic churches of Amherst provide opportunities for Sunday worship, and Sabbath services for Jewish students are held on Friday evenings. Students are encouraged to attend the service of their respective faiths. Several denominations sponsor active student programs centered in the local churches as well, and students are welcome to attend events and join groups sponsored by the denominations.

Placement and Financial Aid

LOANS

University Loans

Through the generosity of friends of the University, funds have been donated to provide loans for a limited number of students of the three upper classes to assist in paying tuition or other college expenses. These loans are granted, after proper consideration, to needy students of good scholarship. All loans are secured by a note endorsed by a responsible party as collateral. In general, if loans are taken out by a senior, they must be paid before graduation; otherwise they are due before the beginning of the next school year. Upon withdrawal from the University, loans automatically become due. On most of the funds, interest is charged at the rate of 3% to maturity and 5% thereafter. Application for loans should be made to the Placement and Financial Aid Services. No loan under this plan will be granted in excess of \$200 in any one year. If funds are available at the beginning of the second semester, loans may be made in exceptional cases to members of the freshman class whose scholastic record is satisfactory and whose budget calculations have been upset through circumstances beyond their control.

Higher Education Loan Plan

Loans up to \$1000 per year may also be obtained by students from the bank of their choice through the Higher Education Loan Plan. Certification of attendance and other information relative to the student's over-all record will be submitted to the bank prior to receipt of the loan. Further information can be obtained through the Placement and Financial Aid Services.

National Defense Student Loan Program

Students may borrow up to \$1000 per year under this program. Interest at 3% starts nine months after completion of the program, repayment to be within 10 years. Special consideration in the granting of these loans is given to needy students of superior scholarship who are majoring in engineering or a physical science, studying a modern foreign language, or planning to teach. Because of the amount of money available, this is necessarily a limited, selective program. Further information and application forms may be secured from the Placement and Financial Aid Services.

SCHOLARSHIPS

The University participates in the College Scholarship Service (CSS) of the College Entrance Examination Board. Participants in CSS subscribe to the principle that the amount

of financial aid granted a student should be based upon financial need. Aid in any one year does not guarantee the same amount of aid in subsequent years. The CSS assists colleges, universities and other agencies in determining the student's need for financial assistance. Entering students seeking financial assistance are required to submit a copy of the Parents' Confidential Statement (PCS) to the College Scholarship Service, designating the University as one of the recipients. The form should be filed no later than March 1 of the admissions year. The PCS form may be obtained from a secondary school or the College Scholarship Service, P.O. Box 176, Princeton, New Jersey 08540, or P.O. Box 1025, Berkeley, California 94704.

Scholarships consist of two types of awards. One is a straight monetary award. The other is a work scholarship called an Undergraduate Assistantship wherein the recipient of the award is required to perform work of an academic or educational nature (about 8 hours per week) under faculty or staff supervision. Scholarships are awarded only to needy and deserving students and whose scholastic records are satisfactory. Scholarships are available to upperclassmen who have attained at least a 2.5 cumulative quality point average or a 2.0 to 2.5 with an average of more than 3.0 in the fall semester. Scholarships are paid in installments at the beginning of each semester in the form of a credit on the student's bill. If the scholarship student withdraws from the University, any refund of University fees or charges must first be applied to reimburse the scholarship fund for the full amount of the scholarship received by the student for the semester. Applications for scholarships may be obtained from the Placement and Financial Aid Services and must be completed and returned by March 1 to be considered.

University Scholarships. The Commonwealth annually provides scholarships in varying amounts for members of each of the four undergraduate classes of the University. Upperclass students may obtain application forms from the Office of Placement and Financial Aid Services. Entering freshmen may obtain application forms from their high school guidance office (CSS Parents Confidential Statement). Recipients must be residents of Massachusetts.

Undergraduate Assistantships. The Commonwealth provides money to be awarded to members of the sophomore, junior and senior classes of the University for a combination work-scholarship program. Students receiving such awards are required to work a minimum number of hours per week under faculty and staff members in research, statistics and other areas of academic professional activities. Recipients must be residents of Massachusetts.

General Scholarships

Albert Pierpont Madeira Scholarship Fund. Established in 1964 to honor the memory of Albert Pierpont Madeira

(1911–1964), Assistant Professor of English, a distinguished teacher and devoted friend of generations of students. The fund was established from an initial grant by the General Electric Company in the amount of \$9,000, the sum won by a team of University scholars who successfully competed in the General Electric College Bowl over national television. Retiring as undefeated national champions, one of only thirteen collegiate teams to do so out of more than two hundred competing to that date, the four scholars—Susan Tracy '65, Michael Berrini '65, William Landis '65, and David Mathieson '64—were coached for many months by Professor Madeira. Because Professor Madeira had expressed great faith in the team's ability to compete with opponents from institutions throughout the country, the team decided to appear on the program despite Professor Madeira's sudden death shortly before the date set for the first contest. After five successful appearances, the team was presented with the General Electric scholarship grant and an additional \$1,500 from Gimbel's Department Store, New York. The total grant of \$10,500, plus any other funds to be added thereto, is held as an endowed fund, the annual interest therefrom to be awarded in the form of scholarships to sophomores, juniors and seniors at the University who have been recommended by the faculty on the basis of good scholastic performance and demonstrated services to the University and to their fellow students. Final selection of individual recipients is made by the Upperclass Sub-Committee of the University Committee on Financial Aid and Scholarships.

Alpha Sigma Phi Scholarship for needy students.

Danforth Keyes Bangs Scholarship for the aid of industrious and deserving students.

Lucius Clapp Fund to provide scholarships and loans to deserving students.

Foreign Student Scholarships. A limited number of scholarships, involving waiver of tuition fees only, awarded on basis of merit and need. Applications should be addressed to the Adviser to Foreign Students.

Henry Gassett Scholarship for a worthy undergraduate student.

Charles A. Gleason Scholarships. General Scholarship for worthy students.

Whiting Street Scholarship. Scholarships of \$50 each for deserving students.

University Associate Alumni Scholarships. A limited number of scholarships awarded on the basis of leadership, need, scholarship and participation in extracurricular activities.

University Foundation Scholarships. A limited number awarded to needy scholars.

Restricted Scholarships

George H. Barber Scholarship and Grant-in-Aid



Awards. A limited number of scholarships or grants-in-aid based on evidence of outstanding athletic performance and good citizenship, need or high scholarship.

Class of 1882 Scholarship for the aid of a worthy student of the junior or senior class.

Frederick G. Crane Scholarships for the aid of worthy undergraduate students, preference given to residents of Berkshire County.

Stephen Davis Scholarship. Established by gift of Mr. and Mrs. Benjamin Davis, New York, in memory of their son, Stephen Davis, Class of 1954, who lost his life while serving as an officer with the United States Air Force. For a male undergraduate majoring in Liberal Arts or Social Sciences who has participated in the athletic program. The selection of the recipient is made jointly by the Dean of the College of Arts and Sciences and by the Dean of the School of Physical Education. The student selected receives each year, not to exceed four years, the full income from the fund so long as he remains in good standing in the University and continues to major in Liberal Arts or the Social Sciences. Annual income is approximately \$800.

Philip B. Hasbrouck Scholarship Fund. Established as an endowment fund through the generosity of the Class of 1910. Income from the fund is used for scholarships for certain deserving juniors and seniors studying a science essential to the national welfare, particularly physics. Students may obtain further information about the scholarship by inquiring at the Office of Placement and Financial Aid Services.



Interfraternity Council Scholarship. A \$100 scholarship awarded annually to a member of one of the social fraternities. The recipient must show evidence of need. In addition, he must have a record of participation in extra-curricular activities and have at least a 2.5 quality point average.

Betsey C. Pinkerton Scholarships. Two general scholarships for graduates of the schools in the city of Worcester.

Sigma Xi Scholarship Award. The Massachusetts Chapter of the Society of the Sigma Xi makes an award of \$100 annually to an undergraduate student at the University in recognition of a developing research interest in the sciences or engineering.

Wilbur H. H. Ward Scholarships. Twenty-five scholarships of approximately \$100, known as the Wilbur H. H. Ward Scholarships. The Ward Fund is administered by a Board of Trustees independent of the University. Applicants for these scholarships write to Mrs. Marian R. Erush, Stockbridge Hall, University of Massachusetts, Amherst 01002. They are available to Hampshire County men.

College of Agriculture

Alvord. For students specializing in the study of Dairy Husbandry or Dairy Manufacturing with the intention of becoming an investigator, teacher, or special practitioner in the dairy industry. Restricted to students who do not use tobacco or fermented beverages.

O. G. Anderson Memorial Fund. For needy and worthy students majoring in pomology. To be used for the

purchase of books and supplies. Granted only on the recommendation of the Department of Plant and Soil Sciences.

Ascension Farm. For men students in the College of Agriculture. Residents of Berkshire County have preference, but awards may be made to students from Hampshire, Hampden, and Franklin Counties.

Boston Flower Exchange Scholarship. A \$300 award to a student with a demonstrated interest in Floriculture. Scholarship given in memory of Rachel Dietz.

Borden Agricultural Scholarship Award. \$300 to the top senior in the College of Agriculture—based on grades at end of junior year.

Buttrick. For junior, senior, or graduate students majoring in Dairy Industry or Food Science and Technology. Scholarships will range from \$100 to \$500 per year depending upon scholarship achievement and need.

H. B. Cantor Foundation. A \$500 scholarship for a student who plans to make hotel management his career, awarded on the basis of financial need and merit.

Club Manager's Association of America. \$300 for a major in Hotel and Restaurant Administration with a demonstrated interest in Club Management.

George M. Coddling. \$1,200 Scholarships for majors in the College of Agriculture who graduated from a public high school in either Taunton or Martha's Vineyard.

Charles M. Cox Trust Fund Scholarship of \$300 is awarded to a student or students in the College of Agriculture on the basis of need, character and scholarship ability. Preferably the scholarships will be awarded to undergraduate majors in dairy husbandry or poultry husbandry.

Dairymen's League Co-Operative Association Scholarship. \$500 for a Junior or Senior in Agricultural and Food Economics with a demonstrated interest in Dairy Marketing or a senior planning on becoming a teacher of Vocational Agriculture.

Lawrence S. Dickinson Scholarship. \$250. Given by the Golf Course Superintendents' Association of New England. To be awarded to an undergraduate who has shown an interest in turf management and expects to continue in this field as a career. Those who are interested should contact the Chairman of the Scholarship Committee, Mr. Philip Cassidy, or Prof. Joseph Troll, Department of Plant and Soil Sciences. This scholarship will be awarded by the superintendents at one of their functions.

J. W. D. French Fund. For students in dairy and forestry, and allied subjects.

Ernest G. Giovino. \$250 scholarship for a student majoring in Hotel and Restaurant Administration.

Golf Course Superintendents Association of America.



\$300 for a student majoring in Plant and Soil Sciences with a demonstrated interest in Turf Management.

Morris Gordon and Son. \$200 scholarship for a student majoring in Hotel and Restaurant Administration.

Henry Folsom Hoo Hoo. Scholarships for students majoring in Wood Technology.

Charles H. Hood Foundation. Awarded to two students in the College of Agriculture, with preference given to those studying the production of milk. Based on scholastic standing, character, industry, and personality.

Howard Johnson's. Two \$500 scholarships for Stockbridge students and one \$500 scholarship for a University student majoring in Restaurant and Hotel Management. Preference is given to children of Howard Johnson's employees and to those who have worked for the company.

Merwin Memorial Free Clinic for Animals. \$500 scholarships for students majoring in Pre-Veterinary or Animal Science.

Margaret Motley. For a woman student majoring in Floriculture or Landscape Gardening. Need, scholarship, and promise of success form the basis of the award which is provided by the Garden Club Federation of Massachusetts, Inc.

National Food Brokers' Association. \$400 to be awarded to either an undergraduate or graduate student in the Department of Agricultural and Food Economics who

is interested in making a career in the food industry.

New England Hotel-Motel and Restaurant Educational Foundation. \$500 scholarships for students majoring in Hotel and Restaurant Administration.

New England Vegetable Growers Association. \$100 scholarship for a sophomore in agriculture. Applications should be made to the Secretary of the Boston Market Gardeners' Association, 240 Beaver Street, Waltham, Massachusetts 02154.

Porter L. Newton. For students majoring in Agriculture who are residents of Middlesex County.

New York Farmers. \$200 scholarships to the top senior, junior and sophomore in the College of Agriculture, and \$100 to the top freshman—based on grades at mid-year.

Frank H. Plumb. For students majoring in the College of Agriculture.

Charles M. Powell. Scholarships for students majoring in Forestry or Wildlife Biology.

Ralston Purina. \$500 scholarship for a student majoring in Veterinary and Animal Science.

V. A. Rice Scholarship Fund. A \$100 scholarship for a worthy student majoring in Animal Science.

Joseph C. Rich. \$100 scholarship for a student majoring in Fisheries Biology.

Saga Food Service. Five \$200 scholarships for students majoring in Restaurant and Hotel Management, awarded on the basis of need and merit.

Sheraton Corporation of America. \$500 scholarship for a student majoring in Hotel and Restaurant Administration.

Ellsworth Milton Statler Foundation. \$500 scholarships for students majoring in Hotel and Food Management. Students must be recommended by the University Scholarship Committee and approved by a Committee of the Statler Foundation.

Springfield Garden Club. For students living in the vicinity of Springfield, Mass., and majoring in some phase of Horticulture.

Stouffer Foundation. Three \$200 scholarships for students majoring in Restaurant and Hotel Management, awarded on the basis of financial need and merit.

Superior Motels. \$200 scholarship for a student majoring in Restaurant and Hotel Management who expects to make motel management his career.

George Treadwell. \$100 scholarship given by Worcester County Poultry Association to a needy and worthy student from Massachusetts who is majoring in Poultry Husbandry at the Stockbridge School of Agriculture.

Frank M. West. \$100 scholarships for Forestry majors.

School of Engineering

Alumni Scholarships. Provided by annual contributions from graduates and friends of the School of Engineering to provide scholarships to deserving and well qualified students pursuing work in a major field of engineering. They are available to freshmen and upperclassmen.

Kollmorgen Optical Corporation Tuition Scholarship. Awarded annually to a junior or senior student majoring in mechanical engineering. Awarded on the basis of need and superior scholastic attainment.

Western Massachusetts Section, American Society of Mechanical Engineers. Awarded annually to a junior or senior mechanical engineering student who is a legal resident of the area represented by the section. Awarded on the basis of need and scholastic attainment.

Air Force ROTC

Substantial scholarships, granting \$50 per month and, in addition, defraying all University tuition, laboratory fees and textbook expenses, are awarded to selected cadets. These scholarships are available only to Juniors and Seniors enrolled in the four-year Air Force ROTC program.

The Armed Forces Communications and Electronics Association will award one \$500 scholarship annually to a Sophomore AFROTC cadet for undergraduate university study in Electrical, Electronics, or Communications Engineering, and/or Technical Photography.

College of Arts and Sciences

Richard W. Fessenden Memorial Scholarship. An award made to undergraduate students majoring in chemistry upon the recommendation of the department of chemistry. This award is made possible by donations from friends and former students of Dr. Fessenden, former professor of chemistry at the University.

Massachusetts City Managers' Association Scholarship. Tuition scholarship awarded by committee composed of the President of the City Managers' Association, the head of the department of government and the Director of the Bureau of Government Research, to an undergraduate or graduate student majoring in government.

Public Health

Massachusetts Department of Public Health Scholarship. A scholarship in the amount of \$300 made to an outstanding student in the field of bacteriology and public health.

Massachusetts Association of Sanitarians Scholarship. A scholarship in the amount of \$100 made to an outstanding student interested in the general field of public health.

Massachusetts Milk Inspectors' Association. One or



more scholarships, each in the amount of \$100, made to outstanding students interested in the field of sanitation or milk sanitation.

Public Health Service Traineeship for graduates and undergraduates, one or more annually, complete expenses paid as a stipend.

William B. Palmer Scholarship for juniors and seniors majoring in Sanitary Science or Public Health, \$300 annually (The International Association of Milk and Food Sanitarians).

School of Home Economics

Berkshire County Women's Advisory Council Scholarship. For a student majoring in Home Economics who is a resident of Berkshire County. Preference may be given to applicants who have indicated an interest in Extension work as a career.

Minnie R. Dwight Scholarship. For a student majoring in Home Economics who is a resident of Hampden County. This scholarship is awarded for four years if scholarship is maintained.

Mrs. Clifton Johnson Scholarship. For one or more Home Economics students who are residents of Hampshire County. Preference may be given to applicants who have indicated an interest in Extension work as a career.

Helen Knowlton Award and Scholarship. The award is

for the highest ranking senior Home Economics student. Scholarships are for other deserving Home Economics students.

Massachusetts Home Demonstration Council Scholarship. For a Home Economics student at Framingham State Teachers College or the University of Massachusetts.

Sears, Roebuck Foundation Scholarships. For two incoming freshmen. Recipients are selected by the School of Home Economics from applications filed with the University Committee on Financial Aid and Scholarship. The basis for this award is high scholastic record, qualities of leadership and interest in Home Economics as a career.

Stouffer Restaurant Corporation Scholarship. For a Home Economics student majoring in Nutrition and Food.

Mildred Thomas Scholarship. For a student majoring in Home Economics at Regis, Simmons, State College in Framingham, or the University of Massachusetts. The applicant must be a resident of Worcester County and have completed the freshman year.

Helen A. Whittier Award. For a senior Home Economics student selected on basis of scholarship, need, and character.

4-H Scholarships

Cotting Memorial Scholarship. All college expenses of freshman year—for a woman student. Recipient of this scholarship is selected by a committee of the New England Branch of the Farm and Garden Association from among candidates proposed by State Leaders of 4-H Club work in the New England states.

Esso Scholarship. This scholarship of \$800 is awarded to a freshman enrolled in the College of Agriculture. The recipient receives \$200 during each of the four years he is enrolled. Applications for this scholarship must be submitted to the State 4-H Club Leader.

George L. Farley Scholarships. The Massachusetts Society for Promoting Agriculture has established a scholarship in memory of George L. Farley. The income of approximately \$60 per semester is awarded to deserving 4-H Club members, men or women, recommended by the State Leader of 4-H Clubs from applications submitted by County 4-H Club Agents.

Scholarships for Women Students Only

Chi Omega Award. The local chapter of the Chi Omega Sorority makes an award of \$100 to a woman student majoring in the department of economics or psychology who has the highest scholastic average at the end of the first semester of the senior year.

Greater Springfield Panhellenic Association Award. This award is given each spring for use in the sophomore,

junior, or senior year to a woman student from Western Massachusetts. The award is based on scholarship and need, character and evidence of leadership in campus activities.

Scholarships Abroad

Many U.S. Government, private foundations, and foreign government scholarships are available to qualified seniors for graduate studies abroad. Interested students should get an early start in language competence and in maintaining academic excellence. Several campus committees screen students for Fulbright Scholarships, Danforth Fellowships, Woodrow Wilson Fellowships, etc.

Applicants are usually considered in October of the senior year. Specific deadlines are posted on campus bulletin boards. The Office of Placement and Financial Aid Services maintains a library of up-to-date information about such scholarships.

PART-TIME EMPLOYMENT

Part-time employment on campus is available, under the regular campus program and the Federal work-study program. Jobs in various categories, both on and off campus, are filled each year. All jobs are cleared through the Placement and Financial Aid Services. Wages vary according to the type of job and the student's past experience; however, those allowed to work should plan to spend no more than ten to fifteen hours per week on such work. The average earnings of students engaged in part-time work are approximately \$200 to \$300 per year.

VETERANS AND VETERANS' DEPENDENTS BENEFITS

Veterans or dependents of veterans eligible for educational benefits under the Veterans' Bill, P.L. 358, the Disabled Veterans Bill 894, or the War Orphan Bill 634 should present a Certificate of Eligibility at registration. A staff member coordinates all veteran affairs and is ready to help with appropriate clearance through the Veterans Administration. Veterans or veterans' children who are transferring to the University from another institution or who have done summer work at another institution will be required to submit a supplemental Certificate of Eligibility at registration. This may be obtained by applying through the veterans' office at the institution last attended.

SPECIAL FINANCIAL AID FOR GRADUATES INTERESTED IN FARMING

The Lotta M. Crabtree Agricultural Funds make available to graduates of the University funds to be used for farm financing. The purpose of loans from these funds is to assist meritorious graduates who are without means in establish-



ing themselves in agricultural pursuits. These loans are made without interest or service charges other than the cost of title search and legal papers. They must, however, be paid back in full amount within a reasonable length of time and there are certain restrictions on their use. Applications for the "Lotta Crabtree Agricultural Fund" should be addressed to the Trustees of the Lotta M. Crabtree Estate, 619 Washington Street, Boston. Decisions regarding the granting of a loan rest entirely with the Trustees under the terms of Miss Crabtree's will.

PLACEMENT

The Placement Office assists the individual to choose a career, prepare for it, enter upon it, and progress in it. Successful placement involves the following functions: counseling students and alumni in the selection of career objectives, assisting registrants in the planning of job campaigns, referring registrants to part-time summer and full-time jobs in all areas, serving as a reference and credential source, serving as a point of contact for employers' inquiries, providing facilities to accomplish these objectives.

Since placement is concerned with students all through their college experience it is suggested that use be made of these services beginning in the freshman year. Exploration of career possibilities should begin early, based on one's aptitudes and interest, training and personal requirements.

A career library containing information of a general nature, for browsing during the process of career planning as well as vocational guidance material covering opportunities with specific employers and information concerning graduate schools and numerous aids on the mechanics of job hunting itself, is available. Counseling is provided both on an individual and group basis in order to assist the individual in his career planning.

During the senior year registration with the placement office provides for further placement counseling, job referrals, and is a help to employers in selecting graduates. A campus interview program with potential employers is conducted each year. The services of the career counseling and placement staff are also available to all students in the graduate school as well as to alumni seeking change of position or finding employment following military service.

General Services

LIBRARIES

The University Library system consists of the central building, Goodell Library, and a number of departmental collections. Present holdings include about 700,000 books and periodical volumes and government documents, and 70,000 microforms. A central card catalog lists under author, title, and subject all books to be found in Goodell and the departmental libraries. Since 1965 the Library has purchased all University-level books currently published in the major Western languages. About 8,000 literary, scientific, scholarly, and popular periodical titles are received. Periodicals are housed in Goodell or the departmental libraries, according to their subject matter. Holdings and locations are listed in both the card catalog and the University's *Catalog of Journal and Serial Holdings*, a computer-produced book that is brought up to date annually.

Goodell Library contains the major portion of the collection, including the reference collection, special collections of rare books and manuscripts, University archives, and microforms. The Library is a depository for U.S. Government publications and receives regularly many publications of the United Nations, other international agencies, and the Commonwealth, cities, and towns of Massachusetts.

Two new libraries, now under construction, are expected to be completed in 1970-71: the 28-story central library designed by Edward Durell Stone to house 2¹/₄ million volumes and seat 3,000 readers, and the Physical Sciences Library designed to house 200,000 volumes and seat 300 readers.

Hampshire Inter-Library Center

Housed in Goodell Library is the Hampshire Inter-Library Center, a cooperative facility for the acquisition, storage, and servicing of research materials, especially journals, documents, and reference sets. Incorporated in 1951, HILC is jointly operated by Amherst, Mount Holyoke, and Smith Colleges, the University of Massachusetts, and the Forbes Library of Northampton. The collection numbers more than 30,000 bound volumes and many files of unbound issues and microforms; some 800 journals are received currently.

THE UNIVERSITY OF MASSACHUSETTS PRESS

Established in 1964 and a member of the American Association of University Presses, The University of Massachusetts Press is dedicated to publishing outstanding scholarly and artistic works. Manuscripts are approved for publication by a committee appointed by the Faculty Senate. Offices of the Press are in Munson Hall.

OFFICE OF UNIVERSITY RELATIONS

The Office of University Relations, directed by the Secretary of the University, serves 1) as liaison between the campus community and the general public, and 2) as an internal information center for the benefit of faculty, students, and administration. Its primary function is to provide accurate information about the University's current and projected programs and thus to foster understanding of the institution's mission as a nationally recognized facility of higher education, research, and public service. To fulfill its program, the Office of University Relations assigns specific responsibilities to three departments: *Publications, News, and Photographic and Broadcasting Services*. Through these departments the office supplies information to all communications media as well as to agencies of government, schools and other educational institutions and foundations, professional societies, research organizations, extension agencies, and to individuals who request data of various kinds.

OFFICE OF BUDGETING AND INSTITUTIONAL STUDIES

The Office of Budgeting and Institutional Studies was established to perform university-wide budgeting functions in the areas of data collection, preparation of budget request documents, and the making of continuing analyses of budget expenditures. In addition to budgeting functions, the office conducts research within the field of higher education and concerns itself with both the University and comparable institutions of higher learning. These research findings are used to assist the administration and faculty in the continuous analysis and improvement of University practices. The office also provides a resource library on higher education which is available to all members of the University community.

BUREAU OF GOVERNMENT RESEARCH

The Bureau of Government Research was established at the University in 1955. The bureau is staffed by professional personnel, experienced in state and local government research. Its work consists of research in governmental problems, in decision-making theory, and in community power analysis. The bureau also conducts training institutes for public officials, provides consultative services to cities and towns, and maintains a research library.

LABOR RELATIONS AND RESEARCH CENTER

The Labor Relations and Research Center has been established to facilitate instruction and research, and to conduct extension programs in labor education. Assisted by an Advisory Council composed of faculty and labor representatives, the center seeks to identify major problems affecting labor in Massachusetts and supports research on



these problems. The center's staff also plans and conducts short courses, conferences and seminars on and off campus in order to meet the needs of the labor movement and its membership.

Under an interdisciplinary faculty committee, programs of study are available that allow an undergraduate to concentrate, within his regular major department, in the field of labor relations. In cooperation with the Graduate School Council, the center also provides for a master's degree program in labor studies and sponsors graduate assistantships and fellowships for qualified students.

THE MASSACHUSETTS POPULATION RESEARCH INSTITUTE

The Massachusetts Population Research Institute, established in 1961 by the Department of Sociology and Anthropology, has a twofold purpose: (1) to serve as a center for the analysis of the structure of and changes in contemporary Massachusetts population; and (2) to provide training for undergraduate and graduate students in the techniques of demographic analysis. The Institute publishes a series of working papers on the major aspects of Massachusetts demographic structure.

PROGRAM IN URBAN AND REGIONAL PROBLEMS

The problems associated with large numbers of people living together in small geographical areas involve many traditional academic disciplines. The departments listed below have developed cooperatively a curriculum for students who have an interest in applying the knowledge of their major to the problems of cities and their effects on adjacent suburban and rural areas. Interested students can

UNIVERSITY OF MASSACHUSETTS



obtain information from the following cooperating departments: Agricultural Economics, Civil Engineering, General Business and Finance, Government, Landscape Architecture, Sociology.

POLYMER RESEARCH INSTITUTE

The Polymer Research Institute carries on a program of advanced studies directed toward gaining greater understanding of the chemistry of plastics. Research is conducted to find better methods for studying the properties of plastic films, fibers and rubbers, and for establishing a relationship between the structure and properties of these materials.

INSTITUTE OF AGRICULTURAL AND INDUSTRIAL MICROBIOLOGY

The Institute of Agricultural and Industrial Microbiology is presently engaged in research regarding the use of microorganisms in the production and processing of agricultural and industrial products such as food and fibers and the control of microorganisms harmful to man and his environment.

RESEARCH COMPUTING CENTER

Important to the many research projects undertaken on a continuing basis at the University is the Research Computing Center housing computer apparatus and peripheral equipment needed for rapid solution of mathematical and statistical problems associated with such projects.

The University also has a subcritical nuclear reactor, electron microscope and other important scientific equipment for use in modern research.

COOPERATIVE SERVICE BUREAU

The Cooperative Service Bureau is an experimental project designed to field test a central data processing system to assist colleges in preparing admissions and financial aid information for use in selection, counseling and research. Twelve universities and colleges have agreed to participate in this program.

WATER RESOURCES RESEARCH CENTER

The establishment of this center at the University has resulted in an expansion of training and research in many diverse aspects of water resources. In addition to the degrees which may be obtained in geology and biology, degree programs are offered in several related fields which train water specialists.

COOPERATIVE SCHOOL SERVICE CENTER

Inaugurated in 1965 by school systems in New England and the School of Education at the University, the center has as its purpose the improvement of the quality of education, the initiation of in-service training and research facilities and the improvement of administration-school board effectiveness.

TECHNICAL RESOURCE SERVICE

Affiliated with the School of Engineering, this is the technological extension service which links the University with industry. It works to extend the application of modern technology in existing industry and commerce, and to generate activities leading to new technologically-based industries and employment. It draws on the full scientific, technological, and business resources, and the complete range of disciplines, available in the University system, and cooperates with all other qualified sources in providing technical expertise to industry.

COOPERATIVE WILDLIFE RESEARCH UNIT

The Cooperative Wildlife Research Unit is supported by the U.S. Fish and Wildlife Service, the Wildlife Management Institute, the Massachusetts Division of Fish and Game, and the University of Massachusetts. The function is to conduct research and extension programs, and to facilitate undergraduate and graduate instruction in wildlife biology.

COOPERATIVE FISHERIES RESEARCH UNIT

The Cooperative Fisheries Research Unit is supported by the U.S. Department of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, and the University of Massachusetts. The function is to conduct research and extension programs, and to facilitate undergraduate and graduate instruction in fisheries biology.

Academic Honor Societies

Phi Beta Kappa. Phi Beta Kappa, the oldest honor society in the United States, was founded at the College of William and Mary on December 5, 1776. The Society recognizes superior scholastic attainment and capacity for high achievement in the arts, humanities, and sciences. At the University of Massachusetts an informal association of Phi Beta Kappa was founded in 1931 by members of the faculty having official standing in the Society. In 1932 the University association, while not authorized to elect students to official membership, was permitted to designate an outstanding student as a Phi Beta Kappa Scholar who would be listed as such in the Commencement program. Selection of such a student has been made each year since 1932. In August, 1964, at the Triennial Meeting of the Society, the University of Massachusetts was authorized to open an official chapter, Nu of Massachusetts, and to elect students to membership in the Society. The chapter was installed on March 30, 1965. Students are elected to membership according to the general criteria of academic excellence in a liberal course of study and good moral character as prescribed by the national society. The degree recipients who are members of Phi Beta Kappa are listed in the Commencement program each year.

Phi Kappa Phi. The Honor Society of Phi Kappa Phi is a national organization, and has been represented on this campus since 1904. Its primary objective is the recognition and encouragement of superior scholarship in all fields of study. Good character is an essential supporting attribute. The Massachusetts chapter elects undergraduates in either their junior or senior years. Members of the Faculty and graduate students are also eligible for election.

Sigma Xi. The Society of the Sigma Xi is the national honor society whose objective is the encouragement of original investigation in science, pure and applied. Since 1938, a chapter of the Society has been active on the campus of the University. The Chapter may elect to associate membership undergraduate students who have shown marked excellence in the study of recognized fields of the sciences and engineering. Election to full membership is accorded those who have clearly demonstrated ability to pursue independent scientific research. The Chapter sponsors a program of public lectures and a number of awards designed to foster the objectives of the Society.

Sigma Gamma Epsilon. The Beta Theta chapter of the Sigma Gamma Epsilon Fraternity was installed at the University of Massachusetts in 1951. The purpose of the fraternity is to stimulate scholastic, scientific, and social advancement of students of the earth sciences in universities and scientific schools with recognized standings in the United States and Canada. Membership is open to men

majoring in geology, mining, metallurgy, ceramics, petroleum engineering, or other branches of earth sciences, who meet the requirements of the fraternity.

Omicron Nu. The Alpha Pi chapter of the Society of Omicron Nu was installed on the campus in 1952. The purpose of the Society is to recognize superior scholarship and to promote leadership and research in home economics. Membership is open to juniors and seniors majoring in home economics who meet the requirements of the society.

Phi Tau Sigma. Phi Tau Sigma honor society is the international honor society for food science. The society was founded at the University of Massachusetts in 1953. Its purpose is to encourage and recognize achievement in the general area of food science. Senior students from all departments related to food science are eligible for election to membership if they meet the society's scholastic and leadership requirements. Graduate students and faculty are also eligible for membership.

Phi Eta Sigma. The Society of Phi Eta Sigma was installed on the campus in 1955. The purpose of the Society is to recognize outstanding scholastic achievement by freshmen men and to encourage a higher standard of learning among all freshmen. Honorary membership is granted those faculty members who are most effective in encouraging students in the attainment of these goals.

Tau Beta Pi. The Massachusetts Zeta Chapter of Tau Beta Pi was installed on campus in the fall of 1955. The society exists for the purpose of honoring engineering students of high scholarship, character, and interest in campus activities. Senior and junior students in the School of Engineering are eligible for election to membership if they meet the requirements.

Beta Gamma Sigma. The Gamma Chapter of the University of Massachusetts was installed in 1959. The purposes of the Society are to encourage and reward scholarship and accomplishment among students in commerce and business administration; to promote the advancement of education in the art and science of business; and to foster integrity in the conduct of business operations.

Alpha Lambda Delta. The Honor Society for Freshman Women was installed at the University of Massachusetts as a chapter of Alpha Lambda Delta, national honor society, in 1960. The purpose is to promote intelligent living and to encourage superior scholastic attainment among freshman women. Members are students who achieve averages of 3.5 or above in the first semester or in cumulative average at the end of the first year of college.

Eta Kappa Nu. Delta Eta Chapter of the Eta Kappa Nu Association was installed on this campus in 1960. The purpose of the association is to recognize outstanding scholar-



ship and leadership in the field of Electrical Engineering. Superior junior and senior students are selected for membership in the fall and spring of each year.

Alpha Zeta is an honor society with membership limited to men majoring in the College of Agriculture. Election to membership is based upon academic excellence and qualities of leadership.

Xi Sigma Pi. The Psi Chapter of Xi Sigma Pi, national forestry honor society, was inaugurated at the University in 1962. The purpose of the society is to secure and maintain a high standard of scholarship in forestry education. Membership is open to juniors and seniors majoring in forest management, wood technology, and wildlife biology who demonstrate leadership ability and who meet other requirements of the fraternity.

Alpha Pi Mu. The Massachusetts Chapter of Alpha Pi Mu, the national Industrial Engineering Honor Society, was installed in 1966. The purpose is to confer recognition upon those students of industrial engineering who have shown exceptional academic interests and abilities. Junior and senior students, faculty, and alumni are eligible for membership.

Kappa Delta Pi. The Kappa Lambda chapter of Kappa Delta Pi was established at the University in 1965. This society encourages high professional, intellectual, and personal standards in the field of education. The local chapter elects undergraduates in either their junior or senior years. Graduate students and members of the faculty are also eligible for membership.

Pi Sigma Alpha. The national political science honor society. Its purpose is to stimulate interest and promote excellence in government and politics. Superior junior and senior students majoring or minoring in government are selected for membership.

Honors, Prizes and Awards

Scholastic Prizes

Phi Kappa Phi Awards for Scholarship. The University of Massachusetts chapter of Phi Kappa Phi, national all-university scholastic honor society, annually presents substantial monetary awards to the outstanding scholar or scholars of each of the four classes. These awards, based upon cumulative scholastic averages and character, are presented at the Honors Banquet in the spring.

Hills Botanical Prize. This is given through the generosity of Henry F. and Leonard M. Hills of Amherst for the first and second best herbaria. Competition is open to members of the senior, junior and sophomore classes. First prize is \$20, second prize \$15.

Massachusetts Society for Promoting Agriculture Prizes. Three prizes of \$25, \$15, and \$10 are awarded to those senior students who are judged to have made the best record in a speaking contest held in March.

Sigma Xi Scholarship Award. The Massachusetts Chapter of the Society of the Sigma Xi makes an award of \$100 annually to an undergraduate student at the University in recognition of a developing research interest in the sciences or engineering.

Betty Steinbugler Prize in English. This prize was endowed by John L. Steinbugler, New York City, in honor of his daughter, Elizabeth Steinbugler Robertson, a graduate of this University in 1929. It is awarded to a woman in the junior or senior class who has written the best long paper on a subject of literary investigation in a course in English during the year.

L. R. Wilson Award in Geology. This award, named in honor of the former head of the Geology Department, is conferred on the graduating senior with an outstanding academic record as a major in geology.

Philip B. Hasbrouck Science Award. This award was established by the Class of 1910 to honor an outstanding teacher, once head of the Department of Physics. The award, made annually to a junior or senior majoring in Physics upon recommendation of the Department, is intended to encourage superior scholarship in the field.

Athletic Awards

Oswald Behrend Award. This award is made annually to the scholar-athlete in the senior class whose achievements of overcoming a physical handicap best exemplify the courage, desire, sportsmanship and rich philosophy of Oswald Behrend, class of 1917. The award is made possible by the Lawrence P. White family, long time friends of Mr. Behrend.

Chester F. Bowen Jr. Memorial Award. The class of 1949 presented the Chester F. Bowen Jr. Memorial Award in track and cross-country to the University as its class gift. Members of the class felt that this gift would be a fitting memorial to a former classmate and a worthy award for the outstanding athlete in varsity track and cross-country.

Samuel S. Crossman Memorial Trophy. This award is made to a member of the senior class who must have received two varsity awards, had an above average academic record, possessed qualities of enthusiasm, cooperation, leadership, and be recognized as the outstanding student-athlete on the campus. The award established by the University Athletic Council, is dedicated to the memory of Samuel S. Crossman and consists of a trophy upon which the name of the student chosen is inscribed. A small replica is presented for his permanent possession.

L. L. Derby Award. This plaque is presented by the Alumni Varsity M Club each year at its Commencement meeting to that member of the track team considered to have been the most valuable member of the team during the past season.

Eastern College Athletic Conference Award. This award is designed to honor the student having a combined record of academic and athletic excellence at each Conference member college. The E.C.A.C. is composed of 114 colleges and universities located in the eastern section of the United States.

The William T. Evans Memorial Trophy. This trophy is given each year to that member of the varsity football team who through his sportsmanship, football ability, character and personality, has exemplified the character and spirit of the person in whose memory this memorial trophy is dedicated. The trophy is dedicated to the memory of William T. Evans, a former member of the class of 1942, who died December 9, 1941. This trophy is presented annually by the class of 1942.

Golf Award. Presented to the most valuable member of the Golf Team as chosen by the letter men of the squad.

Gymnastics Cup. Awarded to the most valuable member of the Gymnastics Team.

Hockey Award. Awarded annually at the Commencement meeting of the Varsity Club to that member of the hockey team who is considered to have been the most valuable player on the team.

The Joseph Lojko Memorial Plaque. Presented to a senior three-sport letter man, having a satisfactory scholastic record and showing those qualities of enthusiasm and cooperation which make for leadership. It is awarded in honor of Joseph Lojko of the Class of 1934, outstanding athlete who died while a senior in the College.

Manager of the Year Award. The Athletic Association awards a gold plaque to that varsity sports manager who



has demonstrated initiative and proficiency in managerial duties.

Pistol Medal. Awarded on a point basis to a member of the varsity team.

The Allan Leon Pond Memorial Medal. Awarded for general excellence in football in memory of Allan Leon Pond of the class of 1920, who died February 26, 1920. He was described as "A congenial companion, a devoted lover of Alma Mater, a veteran of World War I, a fine all-around athlete and a true amateur. He would rather win than lose, but would rather play fair than win." He has been characterized as a typical student of the University.

Rifle Award. Awarded on a point basis to the outstanding member of the varsity rifle team.

Paul Sears Putnam Memorial Tennis Trophy. Awarded to that member of the varsity tennis team who has displayed by his conscientious endeavor, clean play, good sportsmanship and all-around ability as an athlete and scholar, that he is a credit to his team and University. The recipient shall have his name inscribed on the trophy. He shall also be presented with a suitable medal or watch charm. The trophy is established in memory of Paul Sears Putnam, '38, by the members of his family, in the hope that it will stimulate and encourage students to emulate his characteristics of whole-hearted enthusiasm and good sportsmanship, true cooperation and the constant endeavor to always give to the best of their ability in any project they may undertake.

George Henry Richards Memorial Cup. Awarded annually to the member of the basketball team who shows

the greatest improvement in leadership, sportsmanship, and individual and team play during the year. It is in memory of George Henry Richards of the Class of 1921 who died suddenly while a student at the College.

Samuel B. Samuels Basketball Cup. Presented annually in the name of Samuel B. Samuels of the Class of 1925 who was an outstanding basketball player during the early years of basketball as a varsity sport at the University. The trophy is awarded to that letter man who is a regular member of the varsity team and who has performed with excellence during scheduled varsity games.

Maurice Suher Soccer Plaque. Awarded annually to that letter man of the varsity team deemed to have been the most valuable member of the team. It is presented to the University by Maurice Suher of the class of 1930, who was one of the two students largely instrumental in having soccer recognized as a varsity sport at the University. He played on the first varsity soccer team at the University of Massachusetts, in the fall of 1929.

Sports Dad Award. The Sports Dad Association was formed in 1958 and consists of fathers of all varsity athletes. This association awards three trophies to outstanding athletes for scholastic achievement and athletic excellence.

Swimming Trophy. Awarded to the most valuable member of the varsity swimming team.

E. Joseph Thompson Memorial Trophy. This baseball trophy is given by Thomas Thompson in memory of his brother, E. Joseph Thompson who graduated from Massachusetts State College in 1932. He was president of the Student Senate, a varsity letter man in football and baseball, and an outstanding campus citizen. The award goes to that member of the varsity baseball team who best exemplifies the most admirable characteristics of the sport each year.

Wrestling Trophy. Awarded to the most valuable member of the varsity wrestling team.

Department of Military Service

Silver Star for Academic Excellence. Awarded to those cadets who maintained a University academic average of over 3.0 for the previous semester. The award is authorized for wear only until the next semester grades are published.

Gold Star for Academic Excellence. Awarded to those cadets who maintained a University academic average of between 2.5 and 3.0 for the previous semester. The award is authorized for wear only until the next semester grades are published.

Military Proficiency Ribbon. Awarded to those cadets superior in military knowledge each semester. To be eligible for this award a basic course cadet must be in the upper third of his military class and found superior in military bearing. Advanced Course Cadets must be in the

upper half of the class and found superior in military bearing. The award is authorized for wear only until the next semester grades are published.

Department of the Army Awards. The Department of the Army awards annually the Superior Cadet Ribbon with certificates and lapel device to one outstanding student in each academic class. The winner of the award must be in the upper one fourth of his academic class and be selected by the PMS and Dean of Men.

Distinguished Military Students. Members of the first year Advanced Course who, as designated by the Professor of Military Science, possess outstanding qualities of leadership, high moral character, and definite aptitude for military service. Students so designated must possess an academic standing in the upper half of their class or stand in the upper ten per cent of their class in military subjects. All distinguished military students are authorized to wear the Distinguished Military Student Badge.

Distinguished Military Graduates. Members of the graduating class who were previously designated as Distinguished Military Students, who have maintained the same high standards required for such designation, and who have successfully completed training at the Reserve Officers' Training Camp.

Associate Alumni Award. Awarded by the University of Massachusetts Associate Alumni to the Senior ROTC Cadet who, having demonstrated superior qualities of leadership, had been selected as a Distinguished Military Student, is in the upper 25% of his military class and in general exemplifies the attributes of a potential military leader. A 45-caliber pistol is presented to the winner by a representative of the Associate Alumni.

Armed Forces Communications Association Honor Award. Awarded by the Armed Forces Communications Association to the outstanding Senior ROTC Cadet majoring in electrical engineering. The winner is presented with an appropriately engraved gold medal and scroll.

Military Science Faculty Award. Awarded by the Military Science faculty to the Advanced Course Flight Trainee who has demonstrated outstanding qualities of scholarship, military proficiency and flight proficiency.

Reserve Officers Association Award. Awarded by the Reserve Officers Association of the United States, Massachusetts Department, to the Senior Army ROTC Cadet who is outstanding in military proficiency. The winner's name is engraved on a plaque, and a medal, appropriately engraved, is given by the Massachusetts Department. An award is also presented to the individual by the Amherst Chapter.

Amherst Lions Club Award. Awarded by the Amherst Lions Club to the Military Science Cadet who contributed the most to the Army ROTC Brigade.



Cadet Colonel's Award. Awarded to the Advanced Course Cadet (Junior and Senior) who has demonstrated outstanding leadership ability throughout the year in such a manner as to inspire and raise the esprit of the Cadet Corps.

Association of The United States Army Medal and Certificate. Awarded annually by the publishers of Army Magazine to the Junior Cadet who has demonstrated outstanding qualities of leadership and efficiency.

Military Science Trophy. Awarded to the first year Advanced Course Cadet who has demonstrated the highest proficiency in Military Science and has achieved top ranking in scholarship for the year awarded. A sterling silver goblet, suitably engraved is presented to the winner of this award.

Society of American Military Engineers Award. A gold medal presented annually by the Society of American Military Engineers to the outstanding engineering student enrolled in Advanced Military Science.

Elizabeth L. McNamara Trophy. Awarded in honor of Mrs. Elizabeth L. McNamara, a former trustee of the University of Massachusetts, to the Army ROTC Cadet ranking first in scholarship in the second-year basic course. The winner's name is engraved on a plaque and a sterling silver goblet, appropriately engraved, is given to the individual.



John C. Hall Trophy. Awarded annually to the second-year basic course student who ranks number one in military proficiency. The winner's name is engraved on a trophy on display in the ROTC building. A sterling silver goblet appropriately engraved is presented to the winner.

Military Science Award. Awarded to the first year Basic Course Cadet, having demonstrated outstanding leadership potential and military proficiency. A sterling silver goblet, suitably engraved, is presented to the winner of this award.

Department of Air Science

University of Massachusetts Associate Alumni Award. Presented to the outstanding graduating Air Science cadet.

Distinguished Air Force ROTC Graduates. Each year the Professor of Air Science will designate the Distinguished AFROTC Graduates from those cadets who have completed the Professional Officer Course and who will receive their baccalaureate degree. The Distinguished AFROTC Graduates are eligible to compete for a Regular Air Force Commission.

Air Force Association Award. Awarded by the Air Force Association to the Air Science 400 cadet recommended by the Professor of Air Science as having demonstrated outstanding performance in the Professional Officer Course.

Amherst Post, American Legion Award. Presented to the Air Science 400 cadet who has demonstrated outstanding abilities in scholastic achievement.

Air Force Times Award. A Certificate of Merit presented annually to the graduating AFROTC cadet who has distinguished himself in bringing constructive attention to the Air Force ROTC.

Northrop Award. Presented to the Air Science 400 cadet qualified to attend the United States Air Force Flight Training Program who has attained the most outstanding record in the Flight Instruction Program at the University of Massachusetts.

Armed Forces Communications and Electronics Association Award. Presented annually to an outstanding Air Science 400 cadet majoring in Electrical, Electronics, or Communications Engineering.

Society of American Military Engineers ROTC Award. Awarded to the Air Science Professional Officer Course cadet who is the outstanding engineering student of the year, as recommended by the Dean of the School of Engineering and the Professor of Air Science.

Amherst Rotary Club Award. Presented to the outstanding Air Science 300 cadet.

Amherst Post, American Legion Award. Presented to the Air Science 300 cadet who has demonstrated outstanding abilities in scholarship.

Reserve Officers Association Medal and Certificate. Presented annually to an outstanding Air Science 300 cadet who possesses characteristics contributing to leadership and who has attained a grade average of "A" in Air Force ROTC subject matter.

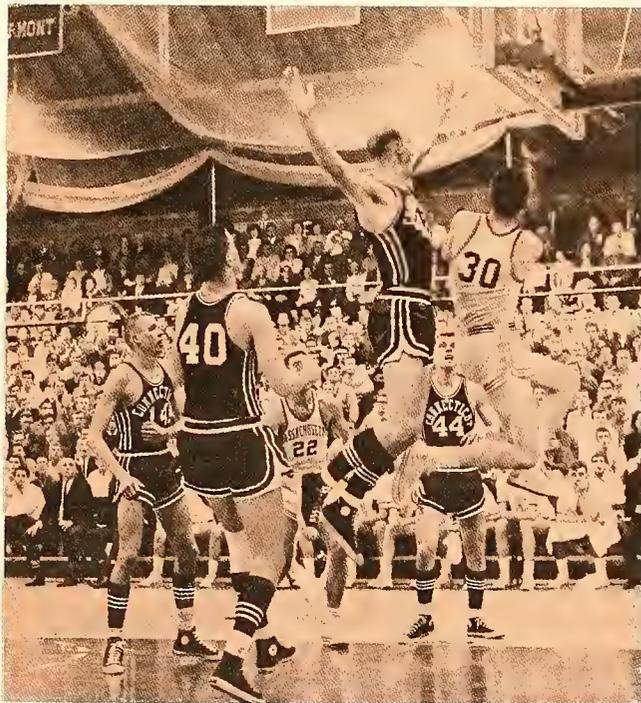
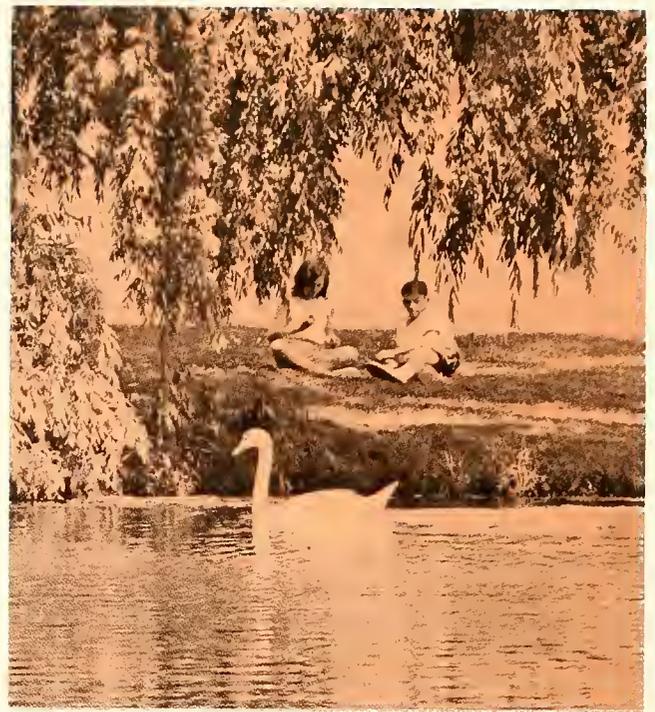
General Dynamics Award. Awarded to the Air Science 200 cadet who has demonstrated outstanding qualities contributing to military leadership.

Earl J. Sanders Post, Veterans of Foreign Wars Award. Presented to an outstanding Air Science 200 cadet, selected for the Professional Officer Course, who has demonstrated outstanding abilities in scholarship.

Sons of the American Revolution Medal. Presented to an Air Science 100 cadet who has shown a high degree of merit in leadership qualities, soldierly bearing, and all-around excellence in the Air Force ROTC program studies and activities.

Amherst Lions Club Award. Presented to the Air Science 100 cadet who has demonstrated outstanding abilities in leadership and scholarship.

Basic Cadet of the Year Award. Presented to the outstanding cadet enrolled in the General Military Course as determined by the 370th AFROTC Cadet Wing Staff for exceptional leadership potential and scholastic performance.



Schools and Colleges of the University

Undergraduate major programs are available in the following areas:

College of Agriculture

Agricultural Business	Landscape Architecture
Agricultural and Food Economics	Park Administration
Agricultural Engineering	Plant and Soil Sciences
Animal Sciences	Plant Pathology
Entomology	Pre-Veterinary
Fisheries Biology	Restaurant and Hotel Management
Food Science and Technology	Wildlife Biology
Forest Management	Wood Technology

Areas of concentration within those listed may be chosen with the approval of the department head or the Dean.

College of Arts and Sciences

Anthropology	Journalistic Studies
Art	Latin (Five College Cooperation Program)
Astronomy (Five College Cooperation Program)	Mathematics
Biochemistry	Microbiology
Botany	Music
Chemistry	Philosophy
Classics (Five College Cooperation Program)	Physics
Economics	Pre-Dental
English	Pre-Medical
French	Pre-Veterinary
Geography	Psychology
Geology	Russian
German	Sociology
Government	Spanish
History	Speech
Italian	Zoology

School of Business Administration

Accounting	Public Relations Management
General Business	Systems Management
Business Administration and Economics	Marketing
Finance	Personnel Management and Industrial Relations
Urban and Regional Studies	Production Management
General Management	Retailing

School of Education

Education	Elementary Education
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School of Engineering

School of Engineering	Electrical Engineering
Aero-Space Engineering	Industrial Engineering
Chemical Engineering	Mechanical Engineering
Civil Engineering	

School of Home Economics

Dietetics and Institutional Administration	Child Development
Foods in Business	Secondary Education and Extension
Fashion Merchandising	

School of Nursing

Basic Nursing

School of Physical Education

Physical Education for Men	Recreation
Physical Education for Women	

Department of Public Health

Community Health and Health Education	Environmental Health Medical Technology
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College of Agriculture

The College of Agriculture, the oldest college of the University, offers a broad general education with specific training in a specialized area. Upon the completion of the requirements for the Bachelor of Science degree, the student will have devoted his time to pure science, social and humanistic studies, and applied sciences and technology.

Undergraduate students in the College of Agriculture are exposed to an interdisciplinary, systems-oriented, problem-solving atmosphere that has been developed to a high degree.

A broad choice of electives within most of the major programs gives the student an opportunity to prepare for a career in business, industry, education, research, government, services or production agriculture.

A unique feature of the College of Agriculture is that the faculty for all the major programs is drawn from the three divisions of the College—research, resident teaching and extension, thereby bringing a depth of teaching to every student.

All departments—Agricultural & Food Economics, Agricultural Engineering, Entomology, Food Science & Technology, Forestry and Wildlife Management, Landscape Architecture, Plant Pathology, Plant & Soil Sciences and Veterinary and Animal Sciences offer graduate degrees in a discipline or professional field.

INTERNATIONAL AGRICULTURAL STUDIES (Interdepartmental Program). The unprecedented increase in the human population of the world makes mandatory rapid increases in world food production. Estimates indicate that total food production must double by the year 2000 to maintain our current inadequate nutritional levels and must triple if reasonable improvement is to be accomplished.

Students in this program will prepare themselves for careers in foreign agricultural development and trade. Students will be trained for international careers in the several technical fields within agriculture, in administration of agricultural programs, and in agribusiness. The program will require five years to complete, including a required year abroad in a developing country during the fourth year, and leads to a Bachelor of Science degree with a major in International Agriculture. A total of 132 credit hours, including six awarded for the overseas training and six for language certification, will be required for graduation.

In addition to University core curriculum requirements and

professional courses in their individual majors, students will use electives to take the following recommended courses. (For Freshman year curricula, see major program for required Freshman courses.)

Agricultural and Food Economics 100 and 381;

Sociology 101 and 252;

Anthropology 104 and 379;

Geography 255;

Economics 266;

Government 130;

Certification of ability in the non-English language spoken in the region of the student's overseas training experience.

The year abroad will include language study and supervised work experience in a developing country. Certification of language ability is required.

The program also involves farm work experience and participation in pre-departure orientation for year-abroad students.

STOCKBRIDGE SCHOOL. For those students interested in a two-year Associate Degree program in the food and agricultural industries, the University provides offerings in the Stockbridge School. A separate bulletin describes these offerings in detail.

Major programs in the College of Agriculture, B.S. degree, are as follows:

Agricultural Business Management. Growing demand for food and fiber products, both for domestic and foreign consumption, increases the importance of planning and management in the production and marketing of these products.

Agricultural Business Management focuses upon the application of principles of economics and business management to the problems of supplying agricultural businesses and the production and marketing of agricultural products.

The rapidly changing agricultural industry offers increasing opportunities for students with specialized training in business and economics, as executives of marketing firms, farm supply organizations and food processing concerns. There are many other opportunities available to graduates in teaching and research and in administrative positions and public service.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
*Math. 111, 121 or 123		Math. 113, 123 or 124	
Introductory	3	Introductory	3
Natural Sci. (a)	3	Natural Sci. (a)	3
Social Sci. (b)	3	Social Sci. (b)	3
Agric. & Food Economics 110	3	Speech 101 Public Speaking	2
—	—	Elective (c)	3
14	—	—	16

- * On basis of placement tests at time of summer counseling Alg. & Trig. 121—(Not open to students having entrance credits in Trig.)
a) Choose from Chem. 111 & 112, Physics 103 & 104, Bot. 100, Zool. 101, Microbiol. 150, and Astron.
b) Choose from Gov. 100 & 150, Hist. 100, 101, 150, & 151, Psych. 105 & 106, and Sociol. 101 & 102.
c) Recommendations for some elective courses are made from the fields of Economics, Business and Technical Subjects in Agriculture, depending upon the interests of the individual student.

Agricultural Engineering. This professional field includes engineering activities which relate macrophysical and microphysical environments to the production, preservation, and processing of food and other biological materials. The academic program is quantitative in nature and emphasizes the integration of mathematics and the physical sciences into the interpretation and solution of biological production and processing problems. Agricultural engineers find professional employment in a variety of industries as well as in public and private agencies engaged in research and development.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
Chem. 111 or 113 Gen. Inorg.	3 or 4	Chem. 112 or 114	3 or 4
*Math. 135 Anal. Geom. & Calculus	3	Math. 136 Anal. Geom. & Calculus	3
Speech 101 Oral Communic.	2	Physics 161 General	4
Social Sci. Elective	3	Engr. 104 Problems	3
Engr. 103 Graphics	3	—	—
—	—	15 or 16	—
16 or 17	—	—	—

* On basis of placement tests at time of summer counseling.

Animal Sciences and Pre-Veterinary. The curriculum in the Animal Sciences, including poultry, is designed to provide fundamental training and knowledge in the comparative nutrition, physiology, genetics, and management of various classes of livestock and to understand the role of animal production in the national and world economy. Options emphasizing commercial animal production are supported by electives in agricultural economics, agricultural engineering, and business administration. Students interested in graduate work in such specialized areas of the animal sciences as nutrition, physiology or genetics should elect programs with special emphasis on the basic sciences.

Freshmen pre-veterinary students in the College of Agriculture usually major in Animal Science, but may choose other departments if appropriate to the students' interests. Those who

by their work in the first year demonstrate a potential for success should apply to the Pre-Professional Advisory Committee for admission into the pre-veterinary program (see page 52 under heading Pre-Dental, Pre-Medical, etc. for additional information). All pre-veterinary students, regardless of major, are counseled by the pre-veterinary advisor in the Animal Science Department at the College of Agriculture.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Animal Sci. 121		Speech 101 Oral	
Introduct.	2	Communic.	2
Botany 100 General	3	Zool. 101 General	3
Chem. 111 General	3	Chem. 112 General	3
English 111 Composition	2	English 112 Composition	2
*Math.	3	Math. 112 Finite	3
—	—	Social Sci.	3
14	—	—	—
—	—	—	16

* On basis of placement tests at time of summer counseling.

Entomology. Courses in Entomology acquaint students with all phases of insects and insect control, including apiculture and medical entomology. Trained entomologists find positions in public service and industry, such as teaching at all levels; research, quarantine and regulatory work in state or Federal service, various roles in public health and pest control activities; research, sales and public relations work in the agricultural chemicals industry; and apiculture.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
Chem. 111 General	3	Chem. 112 General	3
Zool. 101 Introductory	3	Entomol. 126 General	3
*Math.	3	Math. 112 Finite	3
Foreign Language or Agric. & Food Econ. 110	3	Foreign Language or Botany 100 Introductory	3
—	—	Speech 101 Oral	—
14	—	Communic.	2
—	—	—	—
—	—	—	16

* On basis of placement tests at time of summer counseling.

Environmental Design. The Environmental Design program prepares students for professional study at the graduate level and also provides an introduction to problems of the design of the physical environment for those not intending to pursue graduate study. Options are offered in pre-planning and pre-landscape architecture which afford students the opportunity to prepare for graduate study in either of these professions.

Landscape architects and planners find employment in many public agencies responsible for the design and planning of the physical environment. These include those dealing with parks and open-space systems, housing, urban renewal, and transportation systems at the national, state and local levels. They also are principals of or work in private consulting offices.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2

*Math. 111 or 121 Alg. & Trig.	3	Math. 112 Finite or Math. 123 An. Geom. & Cal.	
Gov. 100 American Gov't.	3	Philos. 125 Introductory	
Art 100 Basic Drawing	3	Stat. 121 Elementary	3
Botany 100 Introductory	3	Sociol. 101 Introduction	3
	—	Art 115 History of Art	3
	14	Zool. 101 Introductory	3
		Speech 101 Oral Communic.	2
			—
			16

* On basis of placement tests at time of summer counseling. Note: Math 121 cannot be taken for credit if offered for entrance.

Fisheries Biology. Fisheries Biology is concerned in its broadest terms with the management of the aquatic environment in both freshwater and marine situations leading to maximum sustained yields in both sport and commercial catch. It deals with the management of resources and with fundamental factors affecting the biology of species from a research point of view.

As a profession, Fisheries Biology is undergoing an increasing growth and the demand for fisheries graduates has been greater than the output of undergraduate and graduate programs. The greatest demand is for graduates with M.S. degrees.

Government, state and federal, provides the largest number of career opportunities. Educational opportunities in both secondary schools and colleges and universities are on the increase.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	
Speech 101 Oral Communic.	2	or Speech 101 Oral Communic.	2
Botany 100 General	3	Zool. 101 General	3
Chem. 111 General	3	Chem. 112 General	3
*Math. 111 Introductory	3	Math. 113 Survey of Calculus	3
Agric. & Food Econ. 110 or Food & Nat. Res.	3	Social Sci. Elective	3
	—		—
	16		14

* On basis of placement tests at time of summer counseling.

Food Marketing Economics. The food distribution industry is the largest single industry in the nation in terms of number of people employed and in dollar sales. The number of managerial and executive positions in the food industry is growing at a rapid rate because of the expansionary nature of the industry and the advancing state of scientific management being employed.

Abundant opportunities for career employment, having excellent prospects for advancement, are available in private industry, government, and education. Students receive basic courses in Economics, Business, and Labor management.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
*Math. 111, 121 or 123	3	Math. 113, 123 or 134	3
Natural Sci. (a)	3	Natural Sci. (a)	3
Social Sci. (b)	3	Social Sci. (b)	3

Agric. & Food Econ. 110 or Food & Nat. Res.	3	Speech 101 Oral Communic.	2
	—	Elective (c)	3
	14		—
			16

* On basis of placement tests at time of summer counseling. Math 121— (not open to students having entrance credits in Trig.)

a) Choose from Chem. 111 & 112, Physics 103 & 104, Botany 100, Zool. 101, Microbiology 150, and Astron.

b) Choose from Gov. 100 & 150, Hist. 100, 101, 150, & 151, Psych. 105 & 106, and Sociol. 101 & 102.

c) Recommendations for some elective courses are made mostly from the fields of Economics and Business, depending upon the interests of the individual student.

Food Science and Technology. A major in Food Science and Technology provides scientific and technological training in the principles concerned with the processing, preservation, and packaging of foods and food products. The student's training is directed to the application of modern science and technology to research and to the manufacturing and distribution of foods. Major fields open to graduates include: (1) product research and development; (2) food processing and packaging; (3) technological work and research in government, industry, and education; (4) advanced graduate study.

The curriculum in Food Science and Technology, of which approximately 20% of the credits are electives, is designed to provide flexibility to meet the interest and objectives of the student as well as the opportunity to obtain professional training as recommended by the Institute of Food Technologists.

Supporting courses are selected with the guidance of the major adviser and may include, among others: Agric. Eng. 386, Chem. 281, 282, Biochem. 224, Food Sci. 258, 365, 384, Microbiology, Statistics and Computer Science.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
Chem. 111 General	3	Chem. 112 General	3
Math. 123 Analytical Geom. & Calculus*	3	Math. 124 Analytical Geom. & Calculus	3
Botany 100 General	3	Zool. 101 General	3
Speech 101 Oral Communic.	2	Social Sci. or Language	3
Agric. & Food Econ. 110 or Language	3		—
	—		14
	16		

* On basis of placement tests at time of summer counseling.

Forestry. This major is concerned with the protection and management of forest lands, park lands and open spaces for the production of goods and services which include wood, water, wildlife and amenity values such as recreation.

The curriculum in Forestry includes courses in the natural and biological sciences, economics, systems analysis and computer sciences, management, forest administration and environmental quality. Three curricula are available with emphasis on Forest Sciences, Forest Business and General Forestry.

The accredited program prepares graduates for employment with private industry, Federal and state agencies, conservation and planning organizations.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
*Math. 110, 116 or 121	3	Math. 116 or 119	3
Chem. 111 Inorganic	3	Chem. 112 Inorganic	3
Botany 100 Introductory	3	Zool. 101 Introductory	3
Agric. & Food Econ. 110 or Food & Nat. Res.	3	Forestry 112 Dendrology	3
	—	Speech 101 Oral	—
	14	Communic.	2
			—
			16

* On basis of placement tests at time of summer counseling. Note: Math. 121 cannot be taken for credit if offered for entrance.

Natural Resource Economics. The resource economics program is designed to train students to assist in making public and private decisions on resource development and management which will contribute to the twin goals of greater resource productivity and improved environment. Students will study the many problems of resource use, the forces which have combined to create these problems, and the possible solutions to these problems. Training in economic decision-making and the technical characteristics of specific natural resources provide a unique competence for performing these nationally important careers.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
*Math. 111, 121 or 123	3	Math. 113, 123 or 124	3
Natural Sci. (a)	3	Natural Sci. (a)	3
Social Sci. (b)	3	Social Sci. (b)	3
Agric. & Food Econ. 110	3	Speech 101	2
	—	Elective	3
	14		—
			16

* On basis of placement tests at time of summer counseling. Alg. & Trig. 121—not open to students having entrance credits in Trigonometry).
 a) Choose from Chem. 101 & 112, Physics 103 & 104, Botany 100, Zool. 101, Microbiol. 150, and Astron.
 b) Choose from Gov. 100 & 150, Hist. 100, 101, 150, & 151, Psych. 105 & 106, and Sociol. 101 & 102.

Park Administration. Park Administration is a comparatively new specialized profession in the field of public service. A growing awareness of the importance of parks to society, to man and his environment, and their relationship to the overall economy is being recognized, thus bringing increased demands for trained administrators at the national, state and local levels.

Careers may be found in the National Park Service, Bureau of Outdoor Recreation, State, Regional, County, and Municipal park systems. Additional opportunities exist in agricultural, recreational, cemetery, golf course, industrial and educational organizations. Demand for graduates is very strong.

In addition to the core curriculum, students will take courses in Arboriculture, Botany, Economics, Entomology, Forestry, Government, Landscape Architecture and Recreation.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
*Math. 111 Introductory or Math. 121 Alg. & Trig.	3	Math. 112 Finite or Math. 123 An. Geom. & Gov. 100 American	3
		Cal. or Philos. 125	—
			14

Chem.100 or 111 General	3	Introductory	3
Botany 100 Introductory	3	Sociol. 101 Introductory	3
	—	Zool. 101 Introductory	3
	14	Speech 101 Oral	—
		Communic.	2
		Elective (Humanities)	3
			—
			16

* On basis of placement tests at time of summer counseling. Note: Math. 121 cannot be taken for credit if offered for entrance.

Plant Industry. The curriculum in Plant Industry provides students with a scientific basis of soil and plant relationships; a general knowledge of economic plants and an area of special study. By selection of option and elective courses and special problems, students major in: Agronomic Crops (i.e., Field and Forage Crops); Horticultural Crops (i.e., Flowers, Ornamentals (Nursery), Fruits and Vegetables); and Turf Management. Students are prepared for a variety of career opportunities in industry, business, marketing, production, sales, control, and regulatory services in state and Federal agencies.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
Speech 101 Oral	—	Chem. 112 General	3
Communic.	2	Math. 112, 113, 115, or 151	3
Botany 100 General	3	*Math.	3
*Math.	3	Plant & Soil Sci. 100 or Basic Plant Sci.	3
Plant & Soil Sci. 110	3	Social Sci. Elective	3
Social Sci. Elective	3	Zool. 101 Introductory	3
	—	Phys. Ed.	—
	16		—
			17

* On basis of placement tests at time of summer counseling.

Plant Pathology. Plant Pathology is concerned with the nature and control of plant diseases caused by fungi, viruses, bacteria, nematodes, certain higher plants and unfavorable environmental conditions. Plant pathologists fill positions in public service and in industry, such as teaching at all levels; research in state, Federal, university, and industrial laboratories and experiment stations; and Extension Service through Federal, state and county organizations. They are also employed in quarantine and regulatory work, in various roles in plant disease control, and in sales and public relations work in agricultural chemical industries.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
*Math.	3	Math. 112 Finite	3
Chem. 111 General	3	Chem. 112 General	3
Botany 100 General	3	Zool. 101 General	3
Foreign Lang. or Agri. & Food Econ. 110 or Food & Nat. Res.	3	Elective	3
	—	Speech 101 Oral	—
	14	Communic.	2
			—
			16

* On basis of placement tests at time of summer counseling.

Plant Science. In today's world there is a great need for highly trained men in the plant sciences who are available to teach and study the fundamental physiology and genetic processes taking place within plants. A more complete understanding of these processes and the influence of environmental factors upon them will lead to a significant improvement in the supply and quality of plant food and fiber. Students who are interested in such careers as: Plant Breeder and Geneticist, Secondary and College teaching, research and resource development and like professions should major in Plant Science. This option is designed to provide the breadth and depth in basic biological and physical sciences and mathematics necessary for graduate study and the essentials of plant industry.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
Speech 101 Oral		Chem. 112 General	3
Communic.	2	Math.	3
Botany 100 General	3	Social Sci. Elective	3
Chem. 111 General	3	Plant & Soil Sci. 100	
*Math. 135 or 143	3	or Basic Plant Science	3
Plant & Soil Sci. 110		Zool. 101 Introductory	3
Plant Propagation	3		—
	—		17
	16		

* On basis of placement tests at time of summer counseling.

Hotel and Restaurant Administration. The curriculum in Hotel and Restaurant Administration provides technical and professional courses for persons who plan a career in ownership, management or sales in the hotel-motel, food service or related fields. In addition to the required core curriculum courses, students take courses in accounting and control; personnel and management; stewarding; food planning, preparation and service; promotion, merchandising and sales, kitchen planning and maintenance.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
Hotel & Rest. Adm. 100		English 112 Composition	2
Introductory	3	Chem. 102 General or	
English 111 Composition	2	Physics 122 Concepts	3
Chem. 101 General or		Math. 112 Finite	3
Physics 121 Concepts	3	Speech 101 Oral	
*Math. 111 Introductory	3	Communic.	2
Agric. & Food Econ. 110	3	Hotel & Rest. Adm. 101	3
Guest Lecture Series	—	Psych. 101 or	
	14	Sociol. 101 Introduction	3
			—
			16

* On basis of placement tests at time of summer counseling.

Soil Science. Soil science deals with the physical, chemical and biological properties of soils as well as their relationship with higher plants. Men trained in this area become soil chemists, soil physicists, soil microbiologists, hydrologists and soil conservationists. Graduate study is mandatory for professional careers in soils and the soils curriculum is designed to provide the neces-

sary breadth and depth in biological and physical sciences and mathematics for graduate study.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
Speech 101 Oral		Chem. 112 General	3
Communic.	2	Math. 136 Calculus	3
Botany 100 General	3	Social Sci. Elective	3
Chem. 111 General	3	Plant & Soil Sci. 100	
*Math. 135 or 143		or Basic Plant Science	3
Calculus	3	Zool. 101 Introductory	3
Plant & Soil Sci. 110			—
Plant Propagation	3		17
	—		
	16		

* On basis of placement tests at time of summer counseling.

Wildlife Biology. Students of Wildlife Biology prepare for careers as field biologists in management or research, usually with state or Federal agencies concerned with the wildlife resource. These activities require background in the basic biological sciences, and the mathematical, physical and earth sciences. Certain areas of the social sciences, such as economics, provide important background for resource planning and management.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
Speech Oral Communic.	2	Speech Oral Communic.	2
*Math. 111, 123 or 135	3	Math 113, 124, or 136	3
Chem. 111 General	3	Chem. 112 General	3
Botany 100 Introductory	3	Zool. 101 Introductory	3
Agric. & Food Econ. 110		Econ. 125 Elements of	
or Food & Nat. Res.	3	Economics	3
	—		—
	16		16

* On basis of placement tests at time of summer counseling.

Wood Science and Technology. The program in Wood Science and Technology emphasizes studies in the nature and properties of wood, the engineering and chemical technology of its manufacture into a variety of useful products, and the business aspects of industrial management and marketing. Strong demands exist for graduates in wood-processing firms and service-related industries, and in marketing and merchandising.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
Speech 101 Oral		Math. 136 Anal.	
Communic.	2	Geom. & Calculus	3
*Math. 135 Anal.		Chem. 112 General	3
Geom. & Calculus	3	Eng. 104 Problems	2
Botany 100 General	3	Forestry 112 Dendrology	3
Chem. 111 General	3	Social Sci.	3
Eng. 103 Graphics	3		—
	—		16
	16		

* On basis of placement tests at time of summer counseling.

College of Arts and Sciences

Seymour Shapiro, *Acting Dean*

John M. Maki, *Vice-Dean*

Robert W. Wagner, *Associate Dean*

Robert B. Livingston, *Associate Dean*

H. Duncan Rollason, *Assistant Dean*

Gerald W. McFarland, *Assistant Dean*

A university is a community dedicated to helping man acquire and extend knowledge and put it responsibly and maturely to use. It provides its members with range and depth of experience, insists upon their thinking critically, fosters their creative abilities, and increases their power to convey ideas. The university also correlates areas of specialized knowledge by the development of general and comprehensive ideas.

With respect to knowledge which is at present accepted and applied, a university offers instruction and serves as a custodian. Truth which is only vaguely defined or wholly unknown it regards as a challenge to research, particularly by advanced students and the faculty.

To produce liberally educated people is the specific task of a college of arts and sciences. It encourages its members 1) to seek mastery over language (their own and one or more foreign tongues); 2) to gain insight into the cultures which these languages express; 3) to experience the values of formal thought; 4) to acquaint themselves with the disciplines which deal with animate and inanimate nature; 5) to be aware of the methods and results of the sciences which investigate man, his institutions, and his culture; 6) to comprehend the relation of man's ideals and aspirations to his experience as interpreted by the humanities. The College of Arts and Sciences of the University encourages its members to learn the importance of justifying their beliefs and actions, examining the consequences thereof, and liberating themselves from the bondage of uncritical opinion. It wishes them to apply and extend knowledge. For these purposes especially, the College must see that its members devote intensive study to particular areas of knowledge. All instrumentalities of the College—facilities, curricula, influence over student life, choice and support of the faculty—are directed to these ends.

The College offers instruction in the fine arts, the humanities, the social sciences, the natural sciences, and mathematics both for students enrolled in the College and for those in other undergraduate divisions of the University. The program provides for the breadth of intellectual development essential to a liberal education and for concentration which is the necessary foundation for competence in a selected discipline.

The Bachelor of Arts degree may be earned in any one of thirty-two major programs (listed on Page 43). Most of these are described on the following pages along with departmental course offerings; the pre-medical, pre-dental, and pre-veterinary programs are described on Page 52. There is no formal pre-law program, but most students who plan to attend a law school usually prepare themselves by majoring in government or history. Each major program has a chief adviser who provides coordina-

tion among the students, the major program, and the College. The chairman of the pre-medical committee is the chief adviser for students in the pre-medical, pre-dental, and pre-veterinary programs.

The Bachelor of Fine Arts degree may be earned by following one of the programs specified for this degree by the Art Department; the Bachelor of Music degree may be earned by completing one of the programs specified by the Music Department. The programs are described under the appropriate departments on the following pages.

The Bachelor of Science degree may be earned by students with a major in a natural science, mathematics or psychology. The general requirements for this degree and for the Bachelor of Arts degree are quite similar:

Requirements for B.A. and B.S.

1. The successful completion of at least 120 credits, exclusive of required physical education.
2. a) English 111 and 112, or 113, and
b) one of Speech 101, 105, 107, or 150.
3. A pair of related literature courses:
English 125 (or 135)-126 (or 136); 127-12B; 151-152; 153-154; Comparative Literature 201 (or 202) and 203 (or 204); French 161-162; German 277-278; Greek 161-162; Italian 161-162; Latin 161-162; Russian 251-252.
4. Intermediate proficiency in a foreign language as demonstrated by (a) successful completion of a course at the 140 level; (b) satisfactory performance on a placement or achievement test; or (c) by preparatory high school work of four years in one foreign language or a combination of three years in one and two years in another.
5. a) For the Bachelor of Arts Degree, either one of these pairs of History courses 100-101, 110-111, 115-116, 120-121; or any two of these Philosophy courses 105, 161, 162, 201, 202, 203, 204.
b) Candidates for the Bachelor of Science degree must complete at least 60 credits in science, mathematics, and psychology.
6. Two Fine Arts or Humanities courses of at least three credits each from art, music, dramatic arts, English, history, foreign language, literature, comparative literature, philosophy, or rhetoric which are not (a) writing courses in English, nor (b) applicable to requirement 4 above, nor (c) used to fulfill requirements 2, 3, or 5 above. (Bachelor of Science candidates may use the courses of requirement 5(a) for this one.)
7. Four social or behavioral science courses, not all in the same discipline and not more than two of these nine introductory courses: Anthropology 102, 103, 104, 105; Economics 125; Government 100, 160; Psychology 101; Sociology 101. At least three of these courses must be from the University "D" group.

8. Three years' work in science, mathematics, and/or logic consisting of a) two semester courses (at least 6 credits) in one physical science (astronomy, chemistry, geology, or physics), b) two semester courses (at least 6 credits) in the biological sciences (a combination of courses from botany, microbiology, zoology, and Entomology 126, at least one of which has a laboratory), and c) two semester courses (of at least 3 credits each) made up of either (1) two science courses (biological, physical, or a combination) or (2) two courses from one or more of the fields of logic, mathematics, and statistics.
9. Completion of one of the major programs in the College. Each of these programs except the pre-medical and pre-dental includes at least 21 credits of upper division courses in the department of the major. A student may not use more than 30 credits of upper division courses in his major department in the minimum graduation total of 120 credits unless the excess is represented by credits in a senior honors project, by requirements waived by examination without credit, or by advanced placement credits.
10. Requirements 1, 2, 3, 4, 5, 6, 7, and 8 may be partially or completely fulfilled by advanced placement or transfer credits or by advanced placement without credit.

There is no special time sequence for fulfilling the graduation requirements, but there are advantages to completing some of them early in the college program. Sample programs for the first two years for each degree are presented below:

FRESHMAN YEAR

B.A.	B.S.
English 111 and 112	English 111 and 112
Speech 101	Speech 101
Foreign Language	Foreign Language
History 100 and 101	Mathematics
Mathematics or Natural Science	Physical Science
Social Science	Biological Science

SOPHOMORE YEAR

B.A.	B.S.
English 125 and 126	English 125 and 126
Foreign Language	Foreign Language
Natural Science	Mathematics or Natural Science
Social Science	Science
Elective	Elective

The elective in the sophomore year will usually be intimately connected with the student's intended major.

When a student elects a specific major, or is admitted to a specialized degree program, he is assigned a faculty adviser from that major. The faculty adviser helps the student choose his program of study and also serves as a communication link between the student and the Registrar's Office. The student may choose a specific major on entrance or he may postpone this choice until his fourth semester. Until he chooses a specific major, he is listed as a College of Arts and Sciences major and the College of Arts and Sciences Information and Advising Center (CASIAC) serves as the student's adviser. Faculty members from a broad selection of disciplines form the staff of CASIAC and the student may continually meet with the same staff member or he may talk with whomever is on duty at the time. A primary goal of the

Center is to help the student choose a major which is consistent with his interests and potentialities.

Special Program for Superior Students. Any student who at the end of the first semester of his junior year presents a quality point average of 3.0 or higher, and is recommended by his major department for release from formal requirements, may, with the approval of his adviser and the Dean, work out a special program of study for his senior year. This program can consist of any approved combination of course work and independent research or creative effort.

Latin American Studies Program. Undergraduates interested in Latin America may enroll in the Latin American Studies Program. The Program does not constitute a major and is designed to supplement the work done in a regular discipline. However, those students who fulfill the requirements of the Program will be awarded the Certificate in Latin American Studies attesting to their attainment in area and language studies. To earn a certificate a student must 1) satisfactorily demonstrate a practical working knowledge of Spanish or Portuguese and elementary proficiency in the other, 2) satisfactorily complete four courses focused on Latin America, and 3) participate in the Interdisciplinary Seminar on Latin America. The requirements of the Program are to be met partly through courses that fulfill existing requirements of the College and partly through the careful use of electives.

The Committee on Latin American Studies administers the Program and advises interested students. Members of the Committee are: R. L. Bancroft, (Spanish); R. A. Potash, Chairman, (History); D. Proulx, (Anthropology); F. B. Sherwood, (Economics); and H. A. Wiarda, (Government).

HONORS PROGRAM

The College of Arts and Sciences Honors Program offers unusual opportunities for the superior student who is willing and able to engage himself seriously in the learning process. The features of the program are, briefly, as follows:

1. an individualized schedule of studies;
2. thoughtful guidance by a preceptor, a specially selected professor;
3. special honors courses.

The student who is admitted to the program is referred to as a Commonwealth Scholar. Each Scholar prepares with the aid of his preceptor a plan of studies designed to meet the student's abilities, interests, and needs. Although this plan should provide both general education and, in time, an area of concentration, a Commonwealth Scholar need not meet the usual College and University requirements as set forth on pages 50 and 51 of the current *University General Information Bulletin*, except for the 120 credits required for graduation and a major.

The most important feature of the honors program is the guidance provided by the Commonwealth Scholar's preceptor. Each preceptor is a member of the faculty especially interested in working closely with serious and able students. His responsibilities include not only helping select courses but also guiding

the student's intellectual development. Among the preceptors are some of the most distinguished members of the faculty as well as younger professors of great ability.

The junior-senior honors credits may be obtained from honors interdisciplinary seminars, special honors projects, honors courses in one's major (where available), and in University honors colloquia. In addition to the special honors courses, a rich offering of studies is available from the University's several undergraduate colleges and schools with their hundreds of courses, from the graduate program, from special honors sections of courses, and from the offerings of Amherst, Smith and Mount Holyoke Colleges through the Five-College Cooperation program.

The College of Arts and Sciences Honors Program is open by invitation only. Chairman of the program is Dr. Everett H. Emerson, Machmer Hall. The College Honors Committee includes Drs. Herman Cohen, Howard Quint, Peter Lillya, T. O. Wilkinson, and E. H. Emerson.

Pre-Dental, Pre-Medical, and Pre-Veterinary Programs. A student planning to enter a dental, medical, or veterinary school should select a major department in the field of most interest to him. This will usually be in the College of Arts and Sciences but may be in other colleges or schools. Pre-Veterinary students frequently select a major in the College of Agriculture. Preparation for the professional schools requires relatively few specific courses beyond those necessary to obtain the bachelor's degree and can be completed within the four-year curriculum of most departments in the University.

A liberal education is felt to be one of the best backgrounds for entering the medical or dental field. Although many students may be inclined to concentrate in the sciences, this will not necessarily improve the opportunity for entrance into a professional school. Rather, the field of concentration should be determined by the student's strong secondary interests; i.e., he should choose that area most likely to lead to a satisfying alternative career.

Minimum preparation for the pre-professional student should include one year of inorganic, one year of organic, and one semester of analytical chemistry, three semesters of biology, one year of college mathematics, and one year of physics. Certain additional courses in biology, chemistry, or mathematics, as well as a foreign language may be required by some dental, medical, and veterinary schools. Students should consult their advisers as well as professional school catalogs in regard to specific requirements of particular schools. Freshmen who intend to include the pre-professional courses in the curriculum should discuss their plans with the summer counseling adviser as some change in the normal course sequence may be desirable.

Students, who by their work in the first year, demonstrate a potential for success may, in their third semester, apply to the Pre-Professional Advisory Committee for entrance into the pre-medical, pre-dental, or pre-veterinary major. This program is designed to give qualified students the opportunity to broaden their background by providing for increased flexibility in the curriculum of the last two years. These students will have advisers specifically for this program, will be interviewed in the sophomore and junior years, and, upon application to medical school, will be given a written evaluation by the pre-medical committee.

However, admission into a pre-medical, pre-dental, or pre-veterinary program is not a pre-requisite for application to the professional schools. Many students prefer to complete a full major in an academic department; these students should also apply for entrance into the pre-professional program, and they will be interviewed and evaluated in the same manner as those who are accepted as majors.

A file of dental, medical, and veterinary school catalogs and other pertinent material is maintained in the committee office, Room 410, Hasbrouck Hall. Students are encouraged to visit this office for further information concerning preparation for careers in dentistry, medicine, and veterinary medicine.

Individual members of the advisory committee are available for counsel to all interested students at any stage of their program and whether or not they have been accepted into the curriculum as majors. The committee membership for 1969-70 consists of the following: H. E. Bigelow (Botany), J. F. Brandts (Chemistry), B. C. Crooker, Acting Chrmn. (Physics), L. D. Laval-lee (Mathematics), E. J. McWhorter (Chemistry), J. H. Nordin (Biochemistry), G. J. Oberlander (Chemistry), W. B. O'Connor (Zoology), J. S. Phillips (Psychology), H. Rauch (Zoology), and R. E. Smith (Veterinary and Animal Science).

Pre-Law Advising Program. The Pre-Law Advising Program was instituted to provide information to students on career opportunities in the legal profession and requirements for admission to law school. Law schools are not as specific as medical schools concerning the preparation for admission; consequently there is no pre-law major at the University. Interested students are urged to register with the Pre-Law Adviser, Richard F. Conklin, Office of the Provost. Current catalogs from every accredited law school in the United States in addition to other materials pertaining to the legal profession are available in his office.

Anthropology. Courses in anthropology are planned to give the student an understanding of man's evolution and place in the animal kingdom: of his cultural heritage and social behavior, including speech; and of the relationships which obtain among them. The student is further introduced to the fundamental methods of anthropological research and to the major theoretical approaches in the field. The course offerings are designed so that students who desire to prepare for graduate work, as well as those who do not, will find suitable programs for study available within the department.

Anthropology majors must take Anthropology 104 and any two of the other three introductory anthropology courses: 102, 103, and 105. They must further take courses in three of the following social sciences: Economics, Government, Psychology, and Sociology. They are strongly urged to select Zoology 101 in partial fulfillment of their biological science department. All majors are also required to elect a minimum of twenty-one credits and a maximum of twenty-seven credits above the 100-level in anthropology, including 365. With the approval of the departmental advisory committee, an anthropology major may be allowed to substitute as part of this requirement up to nine credits in sociology or non-duplicating courses in anthropology given at one of the cooperating valley institutions. Given the wide-ranging scope of anthropology, a broad background in the arts and sciences is strongly encouraged.

Since fieldwork is an essential component of anthropology,

field and/or laboratory experience is expected of graduate students and is also available and encouraged, on a more limited scale, during the undergraduate program.

Career opportunities for students of anthropology are open in private and public institutions and organizations and include both teaching and research.

Art. The Department of Art offers three programs serving a range of objectives. The first of these leads to a Bachelor of Arts degree with a major in Art and is designed to provide a good general historical and aesthetic knowledge of the arts while affording an opportunity to develop creative ability in the several media. By arrangement with the School of Education, courses can be so arranged that an art major will secure the necessary credits in education to allow him to teach art in the public schools. Prof. J. Hendricks is Chief Adviser.

The other two programs are of a professional nature and lead to a Bachelor of Fine Arts degree. A student must petition the department for admission to either of these programs. Admission is based on the criteria of demonstrated ability and high academic standing so that these programs have the flavor of honors work.

Astronomy. The Four College Department of Astronomy is administered jointly with Amherst, Mount Holyoke, and Smith Colleges. The elementary courses for non-majors are taught separately at each campus but all advanced courses are given on a joint basis for students from the four participating institutions. Four College courses are identified in the University Bulletin by ASTFC. The astronomical resources of all four institutions are available for advanced student use. The Astronomy Program at the University is also a part of the Department of Physics and Astronomy. The graduate program in astronomy is developed in close cooperation with the program in physics.

The Four College Astronomy Department offers undergraduate major programs which furnish 1) specialization for those planning graduate study in astronomy, and 2) a background for those students who are interested in astronomy for its cultural value and who may plan a career in fields such as teaching, scientific journalism, or technical writing and editing.

Those students planning a professional career in astronomy should obtain a strong foundation in physics and mathematics and should plan to finish satisfactorily Astronomy 122, Physics 114 or Physics 107, and Mathematics 174 or 186 by the end of the sophomore year. During the junior and senior year a student must complete 7 credits from Astronomy 238, 343 and 344; Physics 255, 256, 251 and 252; and Mathematics 343. It is strongly recommended that the student take in addition Physics 271, 272, 285 and 286 and Mathematics 341. A good reading knowledge of German, French or Russian is also highly desirable. For honors students an individual research project may be begun as early as the second semester of the junior year. Opportunities for theoretical and observational work on the frontiers of science are available in cosmology, cosmogony, radio astronomy, planetary atmospheres, relativistic astrophysics, solar astronomy, laboratory astrophysics, infrared balloon astronomy, stellar astrophysics, gravitational theory, and spectroscopy. Facilities include the Laboratory for Infrared Astrophysics, balloon astronomy equipment (16-inch telescope and cryogenic detectors), a

modern 16-inch cassegrain reflector, 18-inch, 8-inch and 7-inch refractors, and access (under supervision) to the 120-ft. NERO radio antenna. Original publications often result from such research.

For those majors who are not planning graduate work in astronomy more flexibility in courses is available. While it is still necessary to complete mathematics 174 (or 186), Physics 107 (or 114) and Astronomy 122 (or 101/102), these may be delayed until the junior year. Two additional upper division courses in Astronomy are required. The additional credits necessary for the major may be selected from relevant course offerings in astronomy, physics, or the history and philosophy of science. Students planning to teach may wish to elect courses in education as well. The departmental Chief Adviser, Prof. T. T. Army, should be consulted for planning a specific program.

Asian Studies. Although there is no major program in Asian Studies, the chairman can help students arrange a comprehensive and correlated series of courses dealing with the Far East. This provides an interdisciplinary approach and, at the same time, permits flexibility in student programs.

Biochemistry. The biochemistry major provides a curriculum for those students who have an interest in both biology and chemistry and who wish to achieve a balanced and mutually supporting education in these two areas. Formal education in biochemistry is started with the general biochemistry course in the junior year and continued by requiring advanced tutorial and/or honors programs in the senior year. Professor T. Robinson is Chief Adviser.

For students who, early in their college years, already plan on graduate school and a professional career in biochemistry, this major would be an obvious choice. At present, most students arrive in graduate school to study biochemistry with no background in the subject and must spend a full year before they even have the background for deciding on an area of interest. This major would be valuable for students going into many areas of molecular biology.

For pre-medical, pre-dental, and pre-veterinary students a major in biochemistry would have many attractions. It is well-known that undergraduate experience in biochemistry and related fields can soften the difficult first year of medical school. Furthermore, a movement toward flexibility in the medical curriculum has been developing. A student who majors in biochemistry can look forward to exemption from biochemistry at growing numbers of medical schools with consequent free time for elective research, other courses, etc.

An undergraduate major in biochemistry could be valuable for future junior college and secondary school science teachers who may be expected to have competence in several areas of science. Finally, students who are merely undecided between chemistry and biology may find that a major in biochemistry will provide them with the background for a decision. The curriculum outlined below is flexible enough to allow a student to change his major to biology or chemistry as late as the end of the sophomore year without finding that he has deficiencies to be made up. In addition, the informal discussions during the freshman and sophomore years will provide him with guidance in his final choice of major.

The sample curriculum outlined below conforms to college requirements and closely follows recommendations made at the Symposium on Pregraduate Education in Biochemistry held by the American Society of Biological Chemists in 1965.

First Year: Chemistry 113-114, Mathematics 135-136, Elementary Biology I-II*, German 110-120, English 111-112, Speech 101.

Second Year: Chemistry 165-166 or 261-262, Chemistry 167 or 263-264, Mathematics 185-186, Physics 103-104, German 130, 140 and English 125-126.

Third Year: Biochemistry 223-224, Biochemistry 225-226**, Chemistry 210 (I)—Elem. Biol. Sci. (II), Chemistry 281-282 or 285-286, Social Sciences (I, II), Humanities (I, II), Computer Science (II).

Fourth Year: Chemistry 213 or 272 and an elective. Advanced Bio. Sci. (I, II), e.g., Biochemistry Tutorial or 388 Intro. to Research (I, II), Social Science (I, or I, II).

*Selected from Botany, Microbiology, Zoology in any order.

**Special laboratory sections are scheduled for students majoring in biochemistry. Majors may take the 225-226 sequence for one credit per semester or take 225 for two credits.

Botany. Programs in botany prepare students for teaching and research in biological sciences in high schools, universities, industry, and experimental stations. All students majoring in botany will take the following prescribed courses: Botany 100, 126, 211, Chemistry 111, 112, 160, Math 123 or 135, Physics 103, 104, and Zoology 101 and 240. Professor R. Livingston is the departmental Chief Adviser.

Majors who do not plan to teach in secondary schools should also complete Chemistry 220 and not less than five junior-senior courses, from at least three of the following areas in Botany:

- Area I Ecology—221, 222, 226
- Area II Anatomy and Morphogenesis—291, 301
- Area III Systematics & Morphology—231, 241, 251, 281
- Area IV Cytology and Cytogenetics—270, 311, Zoology 240
- Area V Physiology—212, 261

Students planning to teach in secondary schools must take in addition to the listing in the first paragraph: Zoology 135, Psychology 301, (required during the junior year), Botany 125, and Education 251 (required during the junior year), 285, 310, 311 (these three courses required in one semester of the senior year), and three courses from three of the areas in Botany shown above.

Chemistry. The prime purpose of the Department of Chemistry is to offer sound preparation for graduate study in chemistry. Accordingly, emphasis is placed upon intellectual accomplishment and broad understanding rather than on terminal training for specific chemical tasks. The program designed for this purpose also affords sound preparation for work in chemical industry, chemical institutes, or governmental laboratories. A slightly modified program permits preparation for secondary school teaching. Professor G. Richason is the departmental Chief Adviser.

Students planning to major in chemistry should take Chemistry 113, 114; German 110, 120 (recommended, but Russian may be substituted); Mathematics 135, 136 or 123, 124; Botany 100 and Zoology 101 in the freshman year. Microbiology 140 or 150

or 250 or Entomology 126 may be substituted for one of the biological sciences in the curriculum.

The sophomore year should include Chemistry 165, 166, 167, 168; Mathematics 185, 186 or 173, 174; Physics 141, 142 (Physics 161, 162, 163 provides a stronger background—if this sequence is selected it should be started during the freshman year); German 130, 140. The junior chemistry major takes Chemistry 210 and 285 during the first semester; and 269, 286, and 287, second semester. Chemistry 288 is to be taken during the first semester of the senior year.

To complete requirements for the B.S. degree with a major in chemistry and to qualify for certification to the American Chemical Society the student must take Chemistry 213 and 246, and two additional courses selected from the listing below. One of these two additional courses must be selected from either the "Physical Group" or the "Organic and Biochemistry Group," and with one of the courses being a laboratory course.

Physical Group: 290, 295, 388, Honors (and certain advanced physics and mathematics courses by approval of the Head of Department).

Inorganic, Analytical, and Radiochemistry Group: 213, 215, 244, 246, 247, 388, Honors.

Organic and Biochemistry Group: 271, 272, 388, Honors; Biochemistry 223, 224.

Students in secondary education may use the Education Block to substitute for the two additional courses.

A student may qualify for the B.S. degree in chemistry (but not for certification to the American Chemical Society) without completing Chemistry 269, 213, or 246. However, the curriculum must then include four courses selected from the above listing. One of these must be a laboratory course, and two different groups must be represented by the selection. Students in secondary education may use the Education Block to substitute for two of the courses in the above groups.

Students may satisfy requirements for the B.A. degree by completing the following: Chemistry 113, 114; 165, 166, 167, 168; 210; 281, 282; and 2 courses from the above listing, one of which must be a laboratory course. The same supporting courses are required as listed for the B.S. curriculum, except that German or Russian is not required, nor is the second year of calculus. The B.A. degree requirements also include History 100 and 101 (or option).

Classics. Students majoring in Classics will arrange programs of study most suited to their individual needs and interests. Emphasis may be placed on Greek and/or Latin language and literature, ancient history, ancient art and archaeology, ancient philosophy, ancient religion and mythology, the Classical tradition, or a comparative study of ancient and modern literatures. Two or more of these fields may be combined according to the student's interests.

In addition to the courses in Greek, Latin, and Classics offered in the Department of Romance Languages, related courses are available in the departments of art, English, history, philosophy, political science, and speech. Students may also elect courses in any field of ancient studies at the neighboring colleges, Amherst, Mount Holyoke, and Smith under the Four College Cooperation Program. Information is available from the Department of Romance Languages at the University.

Those wishing to teach Latin and Classics on the high school level should consult with the Department about programs leading to certification.

Comparative Literature. Present Course Offerings: Courses at the 200 level are offered for purposes of general education; readings are done in English translation. Courses at 300 level and above require an easy reading knowledge of either French or German, unless other languages are specified in the course description. A combination of *either* 203 or 204, plus *either* 201 or 202, can serve to fulfill the humanities core requirement in the College of Arts and Sciences.

Proposed Undergraduate Major: The Program in Comparative Literature has been exploring the possibility of an undergraduate major. If such a major should be created, it would be based on the following tentative proposal:

The proposed major in Comparative Literature involves the study of literature in two modern languages, a major and a minor, one of which may be English. Students majoring in Comparative Literature must also fulfill a requirement in a third language, modern or ancient, either by taking six hours of elementary course work in that language or by passing the relevant departmental reading examination.

The normal program will consist of 39 hours of course work, not including the work done in the third language. Of those 39 hours, 18 should be elected in the literature of the major language, 12 in the literature of the minor language, and nine from offerings in Comparative Literature. Any student capable of upper-level work in a third language may elect the following distribution: 15 in the major literature, nine in one minor literature, six in another, and nine in Comparative Literature. Courses in language departments taught in translation, and courses in the Comparative Literature sophomore tracks (201, 202, 203, 204) do not count toward the major. It is, however, recommended that prospective majors in Comparative Literature elect courses in the Comparative Literature sophomore track. It is also recommended that Comparative Literature majors take at least three hours in a non-Western humanities course. No courses in the major block may be counted on a pass-fail basis.

Economics. The undergraduate major in economics is designed to provide a broad, relevant, liberal-arts education. Some economics majors continue their education in graduate work or law or business schools while others pursue careers in government, teaching, research or business. The emphasis is on a thorough grounding in the various techniques of economic analysis and in their application to important problems of economic policy. Fields of emphasis include: macro and micro theory, money and banking, public finance, international trade, underdeveloped economies, labor relations, industrial organization, social control of business, economic history and comparative economic systems. The training in economics takes place in the context of a sound general education in the arts and sciences.

Economics majors must take the basic required courses Economics 125, 126, 201, and 214, and at least twelve additional credits from the economics curriculum. An additional eighteen junior-senior credits may come from economics, business administration, and/or agricultural economics; but not more than twelve of these credits may be taken in economics. At least two semesters of work in other social sciences are required.

Beginning with the class of 1970, two semesters of mathematics are required and, beginning with the class of 1972, one of these must be in calculus (Math 113 or 123 or the equivalent). Students contemplating graduate study in Economics or Business Administration are advised to take Mathematics at least through introductory calculus (Mathematics 123 and 124) and linear algebra.

The pass-fail grading option in economics courses is open to all non-majors subject only to the restriction imposed by the student's major department, and the University. Economics majors may not exercise the pass-fail grading option on upper division courses that are presented to fulfill the requirements of the economics major. Those students who become economics majors after previously having taken upper-division economics courses on a pass-fail basis must offer a minimum of six upper-division economics courses (eighteen credits), including Economics 201 and 214, on a graded basis to satisfy the department major requirement for graduation.

English. The student who majors in English will gain a considerable knowledge of Western literature; he will develop his skill in expository and creative writing; and he will increase his capacity to read literary works with perception and to judge them by critical standards. Such a program has maximum value as liberal education, and is especially useful to students whose interests are in writing, editing, criticism, and teaching. Assistant Professor Richard Noland is departmental Chief Adviser, and Associate Professor Paul S. Sanders is Director of Undergraduate Studies.

The Department of English offers courses in composition, literature, and language. The Program in Journalistic Studies is also administered by the Department. Students majoring in English must take 1) one period course in English literature before 1800 and 2) three of the following four options: a) one course that has as its primary concern the study of the English language, b) one course in the works of Shakespeare, c) one course that studies intensively a single major British or American author, d) one course in the development of a literary genre such as tragedy, comedy, satire, lyric poetry, the novel. The student should elect his remaining six English courses and appropriate courses in other departments, including University core requirements and electives, to provide himself a coherent unit of study that accords with his own needs and interests. The Department publishes a booklet that suggests a variety of such correlated programs.

An English major may take no more than 30 hours of upper-class English courses except to the extent that he earns credits beyond the 120 hours required for graduation. Honors theses may be included in or excluded from the 30-hour total at the writer's discretion. A quality-point average of 2.0 or better must be maintained in the upperclass courses listed in the preceding paragraph. The student may count in the 30 hours required for the major up to six credits for any upperclass course in Comparative Literature, or in any foreign literature read in the language or in translation, except for a course elected to fulfill the Sophomore literature requirement; any upperlevel course in Journalistic Studies or in Linguistics; and any upperlevel course in Speech primarily concerned with language or literature. Furthermore, upon presentation to the Chief English Adviser of

sufficient justification, the student may obtain permission to count other courses not here included.

A student who intends to apply for admission to the Education Block in preparation for secondary-school teaching should consult with Assistant Professor Meredith B. Raymond, Chairman of the English Department's Committee on Teaching. Especially recommended are English 201, a course in the English language, a course in Shakespeare, courses in American and modern literature, and an advanced course in writing.

Journalistic Studies. The major in Journalistic Studies is intended primarily to meet the needs of students who plan careers in communication media and who desire an introduction to journalism as an area of scholarship. Two programs are available: 1) a double major in which the student takes at least 15 credits of junior-senior courses in Journalistic Studies and also completes a major in one other department such as English, history, or government; 2) an interdepartmental major in which the student takes 15 credits in Journalistic Studies, 15 credits of junior-senior courses in one other department, and an integrated program of elective courses. As a rule, the interdepartmental major is limited to honor students.

The courses seek to provide students with some background in communication research, with attention being given to research in writing, language, and public communication problems. Students interested in writing careers should elect only one writing course a semester in their junior and senior years. Any advanced writing course offered by the Department of English is acceptable in meeting the major requirement of at least 15 junior-senior credit hours in Journalistic Studies.

The program in Journalistic Studies is administered by the Department of English.

Geography. Students in many fields, particularly the social sciences, may find courses in Geography valuable as broadening experiences in their general education. For those choosing Geography as a career, the opportunities are many in teaching and in employment in various government agencies as well as industry.

Geology. For students considering geology as a career, the opportunities are many. Those interested primarily in basic science may look to positions in teaching, in museum work, on state and Federal surveys, and in various research organizations. Those concerned with applied science may direct their efforts toward work in mining geology, petroleum geology, engineering geology, ground-water geology, and economic mineralogy. The fields of space science and oceanography also provide opportunities for students with geological training.

The Bachelor of Science degree program is divided into two options, a Geology Option and an Earth Science Option. The Geology Option is designed for those planning a professional career in geology, and provides preparation for graduate work. The Earth Science Option prepares students specifically for careers and certification in the teaching of an earth science course in the secondary level. The departmental Chief Adviser is Mr. T. Rice.

Bachelor of Science, Geology Option, requirements are: one year each of chemistry, physics and biological science; Math-

ematics 135 and 136 or 123 and 124, and one additional course in mathematics or statistics; 33 credits in geology to consist of 101 or 280, 102, 219, 220, 230, 231, 240, 250, and an approved summer field course or summer work; and at least twelve additional credits in mathematics, engineering, geology, or other sciences elected in consultation with an adviser. Not less than three nor more than nine of these twelve additional credits should be in geology courses numbered 200 and above. German or Russian is recommended as the foreign language.

Bachelor of Science, Earth Science Option, requirements are: one year each of chemistry and biological science; Mathematics 135 and 136 or 123 and 124; either one year of physics or one year of astronomy; 21 credits in geology including 101, 102, 219, 220, 230, and 240; at least 12 additional credits in mathematics, geography, or other sciences, elected in consultation with a geology adviser; and the Secondary Education Block.

The Bachelor of Arts degree program in geology is intended for those wishing a broader education in liberal arts than is possible with the Bachelor of Science degree, and may also be useful for those planning to be executives in technical industries. The Bachelor of Arts degree is also adequate preparation for graduate work in geology, though less thorough than the Bachelor of Science, Geology Option.

Bachelor of Arts degree in geology, requirements are: one year each of chemistry, physics and biological science; Mathematics 135 or 123; and 30 credits in geology, including 101, 102, 219, 220, 230, 231 and 250. A summer field course is strongly recommended. Students interested in combining geologic and engineering training may consult the Head of the Department for special provision relating to their programs.

Germanic Languages and Literatures. The elementary and intermediate courses in German are intended to serve as a foundation for a practical knowledge of the language aiming toward wide reading in literature, toward mature oral and written communication and as an aid to research in various other disciplines. The German major examines the full range of German literature and culture as well as the history of the German language and its development within the framework of the Indo-European languages. Prof. H. A. Lea is the departmental Chief Adviser.

To fulfill an undergraduate major in German, a student must complete 30 credits in the department's junior-senior courses (courses in comparative literature that involve German literature earn full German credit). The following courses are required of majors: 277, 279, 280; and in addition one in each of the following categories:

- a) 252 or 263; or 251 if required (see description below)
- b) 253 or 254
- c) 255 or 256 or 257
- d) 258 or 260 or 261
- e) 259

Freshmen who fulfill the language proficiency requirement upon entrance take either 170 or 251 or 279. History 218 and 219 are strongly recommended. Moreover, students are urged to supplement courses with at least one summer at an approved summer school of German or by study abroad.

Government. Courses in government are designed to aid the student in gaining a knowledge of the nature, functions, and prob-

lems of political systems, and of the place of politics in the modern world. These courses can be broadly grouped into the fields of political theory, public law, international relations, both American and foreign governments and politics, and public administration.

Students taking work in government may prepare themselves for a wide range of careers, such as graduate study in political science leading to academic or research careers, careers in public service at the Federal, state or local level, political careers, the study and practice of law, the Foreign Service or international organizations, and secondary school teaching. Prof. G. Sulzner is the departmental Chief Adviser.

The Government Department offers two introductory sequences, Government 100-150 and Government 160-161. Government 100 or Government 160 meets the University requirement of an introductory course in social science. Either Government 150 or Government 161 fulfills the social science distribution requirements. Credit will not be awarded for more than 6 credits of introductory work; students should therefore take either the Government 100-150 sequence or the Government 160-161 sequence.

Majors in government begin with Government 100-150 or Government 160-161, preferably in their freshman or sophomore years. A minimum of eight additional government courses is required. In addition, the department requires supporting work in history and philosophy along with some in economics, psychology, or sociology.

History. Courses in history are designed to provide an understanding of man through a study of patterns of development in the past. The study should also give the student an introduction to major problems in world affairs. A major in history has value to the general student as a humanistic discipline. It has application as preparation for careers in such fields as teaching, law, government, journalism, ministry, library science and business.

Majors must take as basic required courses History 100, 101, 150, and 151 in their freshman and sophomore years, and History 360 in their junior year. The history major will select one of three areas of specialization (European, American, or Latin American history) and take within it a minimum of 15 or a maximum of 18 credits of upper-level course work. Students specializing in European history will be required to include in their program at least 3 credits in ancient or medieval history and an additional 3 credits in the early modern period (from the Renaissance through the 18th century). Prof. W. Davis is the departmental Chief Adviser.

Journalistic Studies. The program in Journalistic Studies offers a double major (18 credits in Journalistic Studies and the requirements of the associated department) and an interdepartmental major (18 credits in Journalistic Studies and 15 upperclass credits in the associated department). A student's choice in these categories is made by agreement with his adviser.

The following are specific requirements of all majors:

1. At least four of these courses in Journalistic Studies: 201, 202, 208, 210, 392.
2. At least two of the following courses in the Department of English (but not more than one writing course a semester): 331, 334, 337, 339, 341, 345, 346, 347, 385, 386, 393.

For students who wish to acquire professional guidance and experience, the program provides non-credit tutoring and on-the-job training. All majors should consider enrolling for tutoring, which is also open to students in other departments. Faculty members with experience in hiring and training reporters will provide students with counseling and job-placement services.

Mathematics and Statistics. The student electing mathematics as a major will find programs providing a variety of stimulating options. These include preparation for a career in teaching at secondary school level, graduate and research work in mathematics, computer programming and data processing, actuarial work, statistics, or an industrial position. Both Bachelor of Arts and Bachelor of Science degrees are offered, and the choice is generally based upon the interest of the student and the direction he wishes to take.

Within the diversity of course offerings lies a core of eight courses which the faculty feel are vital for the understanding, appreciation and intelligent use of modern mathematics. These eight courses, required of all math majors, are designed to introduce the student to two of the major areas of mathematics—analysis and algebra. Included in analysis are calculus and an introduction to topology, while algebra includes vector spaces and matrix theory.

Once these requirements are satisfied, the student may elect courses related to his personal goals. If interested in computer programming and data processing, he would probably take courses in logic, computer science, and linear programming, and perhaps one in probability or statistics. The student bound for a teaching position in a secondary school would probably elect a course in informal geometry, a course in higher geometry or set theory and then spend an entire semester in his senior year practice teaching in a public secondary school. One wishing to enter the actuarial field or industrial employment would undoubtedly want to take courses in probability and statistics, an additional course in analysis (differential equations and numerical analysis), and possibly a survey course of advanced mathematics for engineers (or an applied complex variable course), along with one or two specific engineering courses.

The math major primarily interested in statistics will find that the mathematical base provided in the eight core courses is precisely what is recommended by the leading statistical societies. The introductory courses in statistics and probability will then qualify him for a starting position in industry, or for graduate work.

The student planning to enter the collegiate teaching profession or do research in mathematics would be thinking of graduate school and would be urged to take a greater concentration of the so called "pure" math courses such as group theory, number theory, differential geometry and set theory.

Those students who have demonstrated unusual mathematical aptitude by the completion of their junior year are encouraged either to enroll in a graduate course or to participate in the Senior Honors Program; both are rewarding experiences.

The student majoring in mathematics is assigned an adviser from the faculty. Further opportunities to meet with faculty members on an informal basis are provided by the Mathematics Club. The club also invites guest lecturers to speak on topics of current interest to math majors. For those who enjoy competi-

tive mathematics the department has for the past several years entered a team in the national Putnam Prize Competition.

Professor S. Allen is the departmental Chief Adviser.

Microbiology. The major program in microbiology is designed to offer students sound preparation for more intensive graduate study and research in microbiology, as well as basic preparation for a wide variety of positions as microbiologists in research and non-research laboratories. In either event, microbiology majors should immediately begin preparation in chemistry. Microbiology majors are required to have broad training in collateral sciences, and minimum requirements include chemistry through quantitative analysis and organic, and one year each of introductory biological science, physics, and mathematics. Those students contemplating graduate study will be advised to emphasize stronger training in these collateral sciences. Courses in microbiology are designed to offer fundamental training in the basic core areas and disciplines of this field. Microbiology 250, 280, 340, and seminar are required of majors. Prof. E. Canale-Parola is the departmental Chief Adviser.

Music. The Music Department offers the Bachelor of Music degree and the Bachelor of Arts degree. A student must apply to the department for admission. An audition is required of all applicants.

The Bachelor of Music degree may be earned with one of three areas of concentration: performance, theory-composition, or music education. The three programs have a considerable part (91 credits) in common: The University core requirements (33 credits—36 when Music III is counted as the "C" course), a series of background courses in Music (58 credits) consisting of theory courses 111, 112, 113, 114, 211, 212, 215 and 216 (23 credits), music history and literature courses 102, 201 and 202 (9 credits), performance courses each semester (24 credits), and course 363, Conducting, (2 credits).

The additional requirements for a concentration in performance are: music courses 217, 385, 386, eighteen credits in performance, and 12 elective credits, six of which may not be music credits (totalling 129 credits). A senior solo recital is required.

The additional requirements for a concentration in music education depend upon whether the student's primary skill is vocal or instrumental. In either case, 5 additional credits in performance work and 15 credits for the teacher certification courses are required. For voice students, 16 credits in music education, 6 credits in Italian, and 6 elective credits (totalling 139 credits) are required. For instrumental students 7 credits in music education, 18 credits in instrumental techniques, and 3 elective credits (totalling 139 credits) are required.

The Bachelor of Arts program for a music major is pre-professional, serving the needs of the student who wishes to broaden his cultural background. All majors will take 111, 112, 113, 114, 201, 211, 212, and must register for applied music and either band, orchestra, or chorus every semester. The student will choose as his area of concentration music history, theory, or applied music. The junior-senior years will include a sequence of advanced courses suggested by the department. Students whose major area is applied music are required to present a senior solo recital. Prof. J. Contino is the departmental Chief Adviser.

Majors in other departments may elect a minor in music. This program should include 111, 112, 201, 202, and 4 credits in ensemble or individual applied music. Education majors, upon completion of 111-112, should elect 242 in lieu of 201.

The band, orchestra, chorus, and various small ensemble groups are open to all University students who wish to participate in a performing organization.

The Music Department is an associate member of the National Association of Schools of Music.

Philosophy. Philosophy seeks a comprehensive understanding of the various areas of man's experience in their interrelatedness. In the context of historically important theories, the courses concentrate on methods of inquiry into the persisting questions of philosophy, standards of thought, clarification of ethical and aesthetic values, and the basis of criticism.

Students majoring in philosophy will complete a minimum of 30 credits in courses offered by the department, exclusive of honors work. Normally there should be included 105, 125, 110, 201-204, and at least one course from 295, 385, 386, 390, 391. Prof. J. Robison is the departmental Chief Adviser.

Beginning with the class of 1968 and subject to waiver in special cases, each major is required to include in his program: a course in logic; a course in ethics; four of 201, 202, 203, 204, 261, 264; and the senior seminar.

Philosophy is closely related to many other academic disciplines; it is therefore advisable for every student majoring in this field to carry his study of one other area to a depth sufficient for the exploration of its relations with philosophy. When desirable for this purpose, the minimum of 30 credits in philosophy may be reduced, with departmental approval, to 24. Within the limits of the desirable concentration suggested above, a wide range of supplementary courses is advised among which the following are suggested as typical: Anthropology 104; Art (historical courses); Education 251; English 205, 282; German 256, 257; Government 303, 201, 202; History of Science 360; Mathematics 211, 212; Music (historical courses); Psychology 235, 281; Sociology 282; Speech (historical courses).

For an introduction to the field as a whole, it is advised that a course be selected from 105, 110, 161 and/or 162; but students planning to take advanced work will do well to select from 105, 110, 201-204.

Physics. Courses are designed to accommodate students who desire specialized training in physics, and also to provide required or elected courses for students majoring in engineering, mathematics, chemistry, or other fields. Majors should take Mathematics 123, 124, 173, 174, beginning if possible at the start of the freshman year. The preferred start in physics is in 181, 182, 183, 184, a restricted enrollment course for physics majors, beginning with the first semester of the freshman year. In some cases the (first freshman semester, or later) choice of 161, 162, 163 or 141, 142 may be acceptable. Selection of the first physics course should be made in consultation with an adviser. The freshman year should include Chemistry 111, 112 or, for students who may wish to include considerable chemistry in their later studies, Chemistry 113, 114. (For B.A. degree candidates, this means that the History 100, 101 requirement must be met later.) Minimum required upper-division courses are 251, 252, 255, 256, 271, 285, 385, 386. The Advanced Laboratory I, II (385, 386) may

be replaced by an experimental honors project with the permission of the Head of the Department. Mathematics courses should include advanced calculus, differential equations (343), and Fourier series and orthogonal functions (341). Prof. C. M. Penchina is the Chief Adviser for Physics.

For those students who wish to take more elective courses, or prepare themselves for interdisciplinary studies such as physics and education, biophysics, physics and philosophy, or history of science, the above program can be modified. After consultation with a departmental adviser, Physics 100 could be the introductory course, followed by Physics 161, 162, 163. As soon as possible Mathematics 123, 124 should be taken. In the Junior year a course in electricity with a laboratory is recommended, to be followed by 385, 386 and a year's work in modern physics. Seminars may be available to encourage an interchange of knowledge and experience.

Psychology. The courses in the Psychology Department are planned to impart an understanding of the basic principles, methods and data of psychology as a science and the application of this knowledge to current issues. The Department recognizes that interest in psychology is not limited to those who intend to pursue careers in the discipline. Course offerings are therefore designed so as to permit students to pursue study of various aspects of the subject to differing levels of depth. The wide range of the discipline further permits students to pursue programs of study which lead to either the B.A. or the B.S. degree, depending on the pattern of courses the student elects in the Department and the College.

Psychology 101 is the prerequisite entrance course for all students. Both psychology majors and non-majors may then elect any of the following additional courses without further prerequisite: 141, 145, 201, 210, 220, 230, 260, 262, 263, 270, 280, 290, 301, 305, 311, 325.

Students interested in majoring in psychology should elect Psychology 141 following completion of Psychology 101 and may then pursue a general psychology major or one designed for those preparing for graduate study and professional careers in the field. The general psychology major provides opportunities either for those seeking a general education or for those entering career fields for which psychological information is relevant to pursue a major in psychology without the emphasis on laboratory methodology that would normally be part of the program of those seeking admission to graduate study in the field.

The *general psychology major* must elect, in addition to Psychology 101 and 141, the following: Psychology 305 and a minimum of 21 (and no more than 27) credits of advanced level courses in the Department. Included in the elections must be at least two courses from each of the following two groupings: A: 210, 220, 230, and 250; and B: 260, 270, and 280. Students entering the major will be assigned a Departmental Faculty Adviser with whom discussions should be held from time to time regarding course selection and choice of electives. This program allows the student considerable flexibility to elect a variety of courses both within and outside the Department suited to his interests and needs. Students completing this major will fulfill the *Departmental requirements* for the Bachelor of Arts degree.

(NOTE: Students who have entered the B.A. program may elect the additional courses indicated below to complete a

"career" major *without* shifting to a B.S. program or they may elect to become B.S. degree candidates if in the balance of their program they choose and are able to meet the *additional science requirements of the College*. Depending on their backgrounds, certain transfer students may have difficulty fulfilling these requirements in the time they have available. Students who are in doubt as to which major or degree programs to follow should discuss the available options with their Faculty Advisers.)

The *career psychology major* must elect the same program as the general psychology major as a minimum. In addition, such students should plan to elect Psychology 145 and at least one laboratory course from each of the following two groupings: A: 211, 221, 222, 231, and 251; and B: 261, 271, 281, and 282. These laboratory electives must be taken in proper sequence with their associated non-laboratory prerequisites or corequisites. Students completing this major will fulfill the *Departmental requirements* for either the Bachelor of Arts or the Bachelor of Science degree.

Students in the "career" program (either B.A. or B.S.) who are otherwise eligible will be encouraged to participate in the Honors Program in their junior and senior years.

Selected majors in either program may from time to time be invited to participate in Special Problem programs, the Department's cooperative teaching program or both.

General vs. career major. Both majors permit a considerable degree of flexibility to students in electing courses to meet their individual needs. Graduates from either program (and with either B.A. or B.S. degrees) may pursue advanced study in psychology or related fields. The designation of one program as a "career" major is for the purpose of informing students of the *typical preference* of graduate psychology departments at the present time for applicants who have some background in quantitative and laboratory methods.

Students in the career major program would be assumed to have already made commitments to pursue graduate study, though of course they need not follow this implied intention. Those who for any reason choose to pursue the general program rather than the more intensive career program need not feel that they have excluded themselves from further study or careers in the field.

Only in respect of admission to courses with limited enrollments and to restricted honors and other special offerings will preference be given to those students electing the career major. Otherwise, students in both majors (and in both B.A. and B.S. degree programs) will have full access to the facilities of the Department.

Professor H. Schumer is Chief Adviser for the Department and director of its undergraduate programs. Students are assigned to individual Faculty Advisers when they elect to major in the Department.

Romance Language • All language programs are intended to give 1) a thorough training in language skill, 2) an appreciation of the aesthetic and intellectual qualities of the literature, and 3) a serious insight into the cultures of the nations concerned. Majors are required to complete thirty approved junior-senior credits, six of which may be in related disciplines approved by the department. Majors must be guided by the departmental documents

describing requirements for undergraduate major in consultation with departmental advisers.

French. (See general statement under Romance Languages above).

Italian. At present no major in Italian exists. Students wishing to do further work in this field may take approved courses at Mount Holyoke and Smith Colleges. Prof. Tillona is the Chief Adviser for Italian.

Portuguese. At present no major in Portuguese exists. Students wishing to do further work in this field may take approved courses at Smith College.

Spanish. (See general statement under Romance Languages above).

Slavic Languages and Literatures. Students choosing Russian as their field of major concentration will receive training in reading, writing, speaking and understanding the language, as well as a knowledge of Russian literature. Russian majors will also acquire a background of the history, government and economy of Russia—a background necessary for an understanding of the culture and literature of the Russian people. Russian majors will be prepared to continue their education on the graduate level in the fields of Russian, Slavic languages and literatures, or Russian area studies. Russian majors who choose to become teachers or translators will have the necessary preparation and background in the structure of the language, or experience in translating scientific, technical and scholarly prose. Professor Levin is the Chief Adviser for Russian.

Prerequisite for a major in Russian is the successful completion of four semester courses in the language (12 credits): Russian 110, 120, 130, 140 or the equivalent.

Departmental requirements for a major are the successful completion of

- (a) Six semester courses of language study at the junior-senior level (18 credits): Russian 261, 262, 271, 272, 281, 282.
- (b) Two semester courses of literature study at the junior-senior level (6 credits): Russian 251, 252.
- (c) Not more than two additional courses in Russian culture, language or literature to be selected from the following: Russian 201, 253, 254, 256, 257, 258, 263, 264, 265, 266, 319, 320, 331, 385 or 386.
- (d) Two semester courses in Russian History: History 214, 215.

A list of University courses related to a Russian major may be found at the end of the Russian course offerings. The department strongly recommends that all Russian majors take as many of these related courses as possible, in order to enlarge and deepen their general background.

Sociology. The courses in sociology are planned to give the student an understanding of the factors which influence man in his activities and interests as a member of society and to introduce the fundamental methods of research in sociology. The course offerings are designed so that students who desire to prepare for graduate work, as well as those who do not, will find suitable programs for study available within the department.

Career opportunities are open in a wide range of fields which include public and private welfare agencies, governmental and private research organizations, and education. Those interested in research careers should incorporate within their programs courses in statistics and methodology beyond the introductory levels and should plan on graduate training if they aspire to full professional status in the discipline. The American Association of Schools of Social Work indicates that the pre-professional subjects most closely related to professional work in that field are economics, political science, psychology and sociology.

All majors are required to take Sociology 101 (Introductory Sociology), and a minimum of eight to a maximum of ten 200-level courses selected from among courses offered by the Sociology Department. Sociology majors, especially those who are considering graduate studies, are strongly advised to take a statistics course, Sociology 282 (Sociological Theory), and Sociology 295 (Research Methods). Sociology majors must take two courses of three credits each selected from one or more of the fields of Mathematics, Statistics, and Logic, and are required to select two courses of three credits each from Economics, Government, Psychology, and Anthropology. Prof. Curt Tausky is the Chief Adviser of Sociology.

Speech. Courses in speech are designed to enrich the student's understanding of man through theoretical study of the speech communication process and the application of this theory to various speech forms. A major in speech is valuable, not only to students preparing for a career in one of the speech disciplines, but also as preparation for careers in law, government, the arts, and business.

Majors are required to select one of the following areas of concentration: 1) Communication Disorders (Speech Pathology and Audiology), which is recommended for students who plan to prepare themselves for graduate study in order to meet American Speech and Hearing Association (ASHA) certification standards for careers as speech therapists; 2) Mass Communications (Film-Radio-Television), which is recommended for students who plan to pursue careers in educational or commercial broadcasting or to prepare themselves for graduate study in mass communications; 3) Rhetoric and Public Address, which is recommended for students who plan to pursue careers in law, the ministry, public relations, and similar professions or to prepare themselves for graduate study in rhetoric; 4) Theatre and Oral Interpretation, which is recommended for students who plan to pursue careers in community or commercial theatre or to prepare themselves for graduate study in theatre; 5) Speech Education (a combination of courses from all areas, especially rhetoric and theatre), which is required of all students who plan to earn a secondary school teacher's certificate in speech.

Majors must earn 30 credits of upper-level course work within the department together with prerequisites and related courses in other departments required for an area of concentration. Prof. W. Price is the departmental Chief Adviser.

Zoology. Beginning with the class of 1972, the curriculum for Zoology majors has been revised extensively. The new curriculum reflects the following opinions of the faculty.

1. Students who major in Zoology should acquire a broad knowledge of biological concepts and principles, reinforced by

factual knowledge without which these concepts and principles are professionally meaningless.

2. Within this framework, or core curriculum, a considerable degree of flexibility in selection of courses is both possible and desirable.

3. The core curriculum should be supplemented by a coordinated group of elective courses. These will most often be in Zoology, other biological or physical sciences, mathematics, psychology or anthropology but may be in any other department of the University which best prepares each student for his own professional goals, which takes advantage of his interests, and which also takes into account limitations in his aptitudes.

Each student majoring in Zoology must complete the following Zoology courses: 160 (Principles of Genetics); 360 (General and Cellular Physiology); 221 or 223 (Comparative Anatomy or Histology); 281 or 282 or 283 (Biology of the Lower Invertebrates or Biology of the Higher Invertebrates or General Parasitology); 246 or 335 or 337 or 350 (Population Genetics or Limnology or Population and Community Ecology or Animal Behavior); and 366 or 370 or 380 (Vertebrate Physiology or Comparative Physiology or Developmental Biology). He must attain intermediate proficiency in one of French, German or Russian and complete satisfactorily the following collateral courses: Botany 100 (Introductory Botany); Chemistry 111, 112 (General Chemistry); Chemistry 261, 262, 263, 264 (Organic Chemistry); Biochemistry 223 (General Biochemistry); Mathematics 135, 136 (Analytic Geometry and Calculus for Engineers); and Physics 103, 104 (Introductory Physics). Students who may wish to enroll in additional mathematics courses should complete Mathematics 123, 124 instead of 135, 136; those with a special interest in chemistry or chemical biology may, with the approval of the Chemistry Department, substitute Chemistry 113, 114 for the 111, 112; and those with a special interest in physics may wish to substitute Physics 105, 106, 107 (General Physics) for 103, 104.

All students should enroll in a chemistry sequence in their freshman year, because subsequent courses in Organic Chemistry and Biochemistry are prerequisite to Zoology 360 which in turn is prerequisite to all of the courses in the 366-370-380 group.

Botany 100 should be elected in the fall of the freshman year, as it will serve to review major biological concepts prior to the Zoology major's first zoology course (genetics) in the spring of his freshman year. The mathematics requirement should also be completed in the freshman year.

Zoology 101 (Introductory Zoology) is not required of Zoology majors. Those who have not studied Biology in High School or those who feel that their knowledge of introductory zoology is inadequate may enroll in the course or audit the lectures prior to or concurrently with their enrollment in Zoology 160.

Students who, by advance placement, receive partial or full credit for English, Foreign Language, or Mathematics may take advantage of the increased flexibility in the freshman year to complete other general College or University graduation requirements, to enroll in courses of interest in other departments, or to begin or complete their Physics requirement in the freshman year.

The curriculum for those who plan to become certified secondary school biology teachers requires, in addition to the departmental requirements outlined above, Botany 125 (The

Plant Kingdom) and 126 (New England Flora); Psychology 101 (General Psychology) and 301 (Educational Psychology); Education 251 (History of Education) and, in the senior year, the concentrated "Secondary Education Block" of 12 credits of Education courses. Students in the Secondary Education curriculum may, with the permission of their adviser, substitute Zoology 135 (Introductory Physiology) for the requirement of one of the 366-370-380 group providing that the substitution is not made before the student's junior or senior year, when his plans for secondary teaching have become firm.

A word of caution is necessary. Growth of the department's facilities has not kept pace with the increasing number of students who wish to major in Zoology. It has therefore been necessary for the department to limit the number of majors it can accept. The only fair basis on which such limitation can be made is the student's over-all academic performance during his first 3 semesters. In April, 1969, it proved impossible for the department to accept as majors those members of the class of '71 who had not achieved at least a 2.0 quality point average at the end of their third semester. The level of achievement required is expected to increase continuously for several years, or until greatly enlarged facilities become available.

Religion. Although there is no department of religion at the University of Massachusetts, students interested in pursuing religion as an academic discipline have certain opportunities, both curricular and co-curricular.

In the formal curriculum, courses are offered by several departments in the College of Arts and Sciences. Credit courses in history, such as those covering the ages of medieval civilization and of the Reformation, for example, afford systematic study into the religious institutions and movements of those periods. Similarly, those offered by the Department of Philosophy in the Philosophy of Religion and in Oriental philosophies provide a critical and constructive study of basic issues, in both the contemporary Western world and Asia. Courses are also available through the Five College Program.

In addition to curricular work, students may learn from co-curricular programs of an academic nature offered by the Chaplains and the campus religious organizations. Each year classes (non-credit) are taught by the Chaplains and invited lecturers on topics such as Basic Beliefs and Practices of Judaism, Catholic Faith and Practices, Essentials of Protestant Christianity. Classes in Hebrew and Yiddish, study groups on various problems in campus living, and workshops on personal relations are also open to students.

The B'nai B'rith Hillel Foundation, the United Christian Foundation and the Newman Club frequently bring to the campus lecturers and scholars of national and international repute to speak at open meetings. Distinguished scientists, journalists, and government officials, as well as theologians and religious leaders, have come as guests of the religious organizations, and some provide leadership for large-scale events such as retreats, and Holy Day observances. Lectures on religion are occasionally offered in a series of three or more under the leadership of well-known scholars and teachers. The educational cultural programs of the campus religious organizations are open to all who are interested. Opportunity is also provided for students and faculty to take part in urban volunteer service both in term time and in the summer months.

School of Business Administration

The faculty of the School of Business Administration is keenly aware of the dynamic changes taking place in our economy, the extensive shifts in occupations and professions and the consequent need for intelligent and well educated businessmen. The continuing advancement of technology, science, and the behavioral sciences has placed upon Schools of Business Administration the necessity to probe, not only into the developments of its own areas of education, but also into the relationships that exist among other areas such as mathematics, economics, psychology, sociology, and government.

The School of Business Administration prepares students to take advantage of important economic opportunities and eventually to assume positions of responsibility in business. The school's educational program is directed toward the broad aspects of business, encouraging high standards of ethical conduct, broad social responsibilities, and the development of competence in particular courses of study of the student's own interest, aptitude, and choice.

The first two years emphasize general education by providing fundamental courses in the humanities, mathematics, science, and social science. In addition, basic courses in accounting and economics prepare the student for further work in the School of Business Administration. The junior and senior years emphasize a greater degree of specialization and provide for this in the programs indicated below. But even in these last two years all students need to view business as a whole in so far as a "core" of courses can do this. This "core" of courses is listed below under the junior-senior curricula and is required of all students. Elective courses, whether in the freshman-sophomore years, or in the junior-senior years, require the consent of a student's faculty adviser. A total of at least 120 credits is required for graduation. Each course of study leads to a degree of Bachelor of Business Administration.

All students in the School of Business Administration must attain, as a graduation requirement, a 2.0 average in Accounting 125 and 126; Elementary Economic Statistics 121; Finance 201, Corporation Finance; General Business 260, Business Law 1; Management 201, Principles of Management; and Marketing 201, Fundamentals of Marketing. The "core" must be completed by the end of the junior year unless a student, on recommendation of his department chairman, has received permission from the

Dean to postpone any such course to the senior year.

Students transferring to the School of Business Administration from any school or college within the University shall receive junior and senior elective credit only for those courses passed with a grade of C or better.

Students who intend to transfer from junior or community colleges should complete the program in liberal arts and not register for courses in Business Administration, except Principles of Economics and Elementary Accounting.

Transfer students who complete courses in their first two years that are offered in the junior or senior years will receive transfer credit only if such courses are accepted by the department concerned. An examination for such credit may be required.

The School of Business Administration is a member of the American Association of Collegiate Schools of Business.

FRESHMAN YEAR

<i>First Semester</i>	<i>Credits</i>	<i>Second Semester</i>	<i>Credits</i>
English 111	2	English 112	2
*Speech 101, 105 or 107	2 or 3	Mathematics 117	3
Mathematics 116	3	**History and/or Government	3
**History and/or Government	3	*Math 115	3
***Natural Science	3	*Psychology	3
*Sociology	3	(Military or Air Science 112	1)
(Military or Air Science III	1)	General Physical Education	0
General Physical Education	0		

* May be taken either semester.

** Any sequence or combination of History 100, 101, 150, 151 or Government 100, 150, 160, 161.

*** Any course identified by the letter "E" in the catalog.

Accounting. The accounting program is designed to prepare students for public accounting and for positions in business, industry, and government which require a knowledge of accounting.

General Business and Finance. The department offers five programs of study and specially designed programs for those students who wish to combine business administration with a related field of study outside the School of Business Adminis-

School of Education

tration. The program in Financial Management is designed for those students who wish to prepare for careers in the area of planning and controlling the financial operations of non-financial firms, financial firms, and governmental units. The program in General Business, emphasizing breadth of knowledge and viewpoint, is designed for those students who are uncertain as to their specific career objectives. The program in Business Administration and Economics recognizes the close relationships between areas of study and permits students to complete 27 credits in economics. The program in Business Administration and Quantitative Methods exposes students to operations research and systems analysis through a detailed treatment of the application of mathematics, statistics, and computer science to problems in all of the functional fields of business administration. Since the mathematics and statistics requirements for this program depart from the normal requirements, it is important that interested students elect this program early in their studies. Sophomore and transfer students who have not completed the specified quantitative courses may elect this program only with the permission of the program adviser. The program in Urban and Regional Studies combines courses from many disciplines, including economics, sociology, government, civil engineering, landscape architecture, and agricultural economics. The specific content of a special program is mutually determined by the department chairman and the student.

Management. Many management majors upon graduation go directly into responsible positions in business and government. Others enter management development programs or go on to graduate study.

Each of the programs offered by the department is designed to provide a strong general education together with the basic conceptual and technical skills necessary for success and advancement in all types of organizations.

Marketing. The role of marketing management in our economy is becoming increasingly important. The department of marketing offers a broad range of courses for those students interested in careers in marketing administration, advertising, marketing research, and wholesale and retail enterprise. The department's objective is to provide a specialized and comprehensive understanding of today's managerial marketing problems.

The School of Education is undergoing profound changes based upon an intensive year of planning and restructuring. The 1969—70 academic year is a demonstration period—a preliminary approach to what should prove to be a decade of emerging ideas in teacher education.

The planning year has brought about a new approach to teacher training with a variety of avenues open for each of the four undergraduate years to students who are interested in some phase of education, ranging from Kindergarten through Higher Education.

Although most of these experiences will be in a regular course format, some will be in the form of "Credit Modules," either formally scheduled or negotiated with a faculty member by the student himself. These will consist of something less than a regular course—such as a live-in experience for a week in a housing project, a two-day retreat, or attendance at a conference.

The new School of Education is built around eleven different learning centers:

- Aesthetics in Education
- Counselor Education
- Educational Media and Technology
- Educational Research
- Humanistic Education
- International Education
- Leadership and Administration in Education
- Innovations in Education
- Sociological, Historical, and Philosophical Foundations of Education
- Teacher Education
- Urban Education

In addition to these specific centers, which are evolving appropriate curricula, are special programs in Early Childhood Education, Compensatory Education, Education and Public Policy, Distributive and Vocational, Agricultural, Junior Year Off-Campus, and Higher Education. A Student Centered Curriculum program is emerging, as well as a variety of specific courses that will be offered in response to expressed interests of students.

Teacher Education now has merged into a complete Kindergarten through Twelfth Grade approach, with three separate alternatives open to students. These routes can be entered at various times during the student's academic career, rather than waiting until the Junior Year. They include 1) the Modified Edu-

cation Block which includes orientation, observation, methods courses and supervised teaching; 2) the Intern Program, in which the student spends his full sixteen weeks in a supervised teaching situation, receiving his methods courses concurrently in the school in seminars; 3) other Experimental Programs. Interested students enrolled for teacher certification should contact the Center for Teacher Education as there are a variety of programs continually being set up to answer the needs and interests of students who wish to specialize in some facet of education. A limited number of non-teaching majors may also enroll in any of the eleven learning centers listed above, by contacting the School's Undergraduate Advising Office. All students in good standing in any regular University program may become candidates for admission.

Undergraduate Programs: Elementary and Secondary School Teachers

Undergraduate majors in Education must satisfy all University graduation requirements and accumulate units according to the following general categories: 60 credits in the College of Arts and Sciences, 30 credits in the School of Education, and 30 credits to be selected as electives from whatever colleges and departments the student and adviser deem appropriate. (Note: Some of the 30 Education credits may be accumulated in the form of "Credit Modules" as outlined above.) Students will work closely throughout their educational career with an adviser to assure that they are fulfilling the requirements for teacher certification as well as developing their own unique specialty. Through the eleven Learning Centers it is expected that each student will have the opportunity to maximize his personal learning process, as well as develop capabilities that will make him an outstanding teacher in a rapidly changing world.

Complete details on all programs beginning in September will be available in May and students are encouraged to inquire at the Dean's office at that time concerning specific courses and credential programs.

School of Engineering

The School of Engineering offers curricula in chemical engineering, civil engineering, industrial engineering, mechanical and aero-space engineering, and electrical engineering. Each of the curricula leads to the Bachelor of Science degree in that particular branch of engineers. All curricula are accredited by the Engineers Council for Professional Development.

Engineering is the profession in which a knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to utilize, economically, the material and forces of nature for the benefit of mankind. An engineer requires intensive technical training but at the same time he should acquire the broad education that distinguishes the professional man from the technician. His education does not end with formal schooling but continues throughout his life as he accumulates experience.

The curricula in engineering have been carefully prepared to offer each student the opportunity to acquire the sound training in mathematics and the basic sciences of chemistry and physics upon which is built the work in the engineering sciences. In the senior year, courses are offered which enable the student to use his previous training for engineering analysis, design and engineering systems in his particular field of interest. About twenty percent of his time is devoted to studies in the social science and humanistic area. Some opportunity is provided to elect courses from both the technical and humanistic-social fields. The curriculum of the freshman year is the same for all. Specialization to a limited extent begins in the sophomore year.

A cooperative work-study program involving alternate academic-industrial experience is presently in effect for a limited number of students. This program in addition to providing economic support for participants as they proceed through their educational careers is designed to:

- (1) Advance the professional preparation of undergraduate students by blending real world experience with their academic endeavors; and
- (2) provide industry with opportunity for more direct en-

bringing about chemical and certain physical changes in materials. Chemical engineers may be engaged in any of a wide range of activities concerned with converting an idea to a profit. These include research and development, economic and market analysis, design, construction, operation, production supervision, sales, technical service, and management. Basic research for new knowledge and teaching, and consulting also offer challenging and rewarding careers for many chemical engineers. Chemistry, physics and mathematics are the underlying sciences of chemical engineering, and economics is its guide in practice.

Chemical engineers are in demand not only by industries manufacturing chemicals in the narrow sense of the word, but also by all of the many related "chemical process industries," including petroleum refining and petrochemicals, plastics, synthetic fibers and textiles, pulp and paper, drugs and pharmaceuticals, natural and synthetic rubber, foods, soaps and detergents, paints and synthetic coatings, gas and coal chemicals, steel and all the metal manufacturing industries, and many others. Much of the work of the atomic energy program is chemical engineering, and new fields to which chemical engineers are contributing include bio-medical, aero-space, and ocean engineering.

agement in the responsibility of educating and training its engineering resources.

Although the curricula within the School of Engineering are shown as 8 semesters (normally 4 years), they require up to 130 semester hours credit for satisfactory completion. This is well above the University minimum of 120 semester hours for a degree and it requires intensive work in Mathematics, Science and Engineering. As a result even students in good academic standing may be required to extend their programs into a 9th and sometimes a 10th semester.

Basic Engineering. All new students in engineering are enrolled in the Basic Engineering Program until qualified to enter into a degree program. This is normally upon conclusion of the uniform freshman year program with satisfactory grades.

COURSE REQUIREMENTS—FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 111 Composition	2	English 112 Composition	2
Speech 101 Public Speaking	2	Math. 124 Analytical Geometry & Calculus	3
Math. 123 Analytical Geometry and Calculus	3	*Chem. 112 or 160 General (Organic)	3-4
*Chem. 111 or 115 General	3-5	Engineering 103 Graphics	3
Engineering 104 Problems	2	Physics 161 General	4
Social Science Elective	3	Social Science Elective	3
Military or Air Science III, Optional	1	Military or Air Science 112, Optional	1
Phys. Ed. 001A, B	0	Phys. Ed. 001A, B	0

* It is recommended that Chemical Engineering majors take Chem. 115 and 160 in place of Chem. 111 and 112.

Agricultural Engineering. The program is administered by the College of Agriculture and is described on Page 46.

Chemical Engineering. Chemical Engineering centers around the creation, development, design and operation of processes for

Civil Engineering. Civil Engineering is concerned with all kinds of construction—buildings, bridges, highways and railways, airports, rivers and canals, harbors, dams, pipelines, etc. Transportation, the efficient and economical transfer of people and goods from place to place, is another concern to civil engineers. They are also deeply involved in providing adequate and safe supplies of water for homes and industries, in controlling and limiting the pollution of lakes, streams and ocean, and of the atmosphere. Civil engineers have assumed major responsibilities in ocean engineering, for example, for construction and other operations, for underwater exploitation of mineral and other resources in the seas, and for planning and organizing the transportation that will be required eventually in regions of underwater activity. There are various specialized areas of civil engineering which make essential contributions to the programs that have been mentioned, for example, hydraulic engineering and fluid mechanics, soil mechanics and foundations engineering, surveying and mapping, structural engineering and materials engineering.

In every area of Civil Engineering there is the choice of a wide range of activities: research to obtain new knowledge, development of practical methods and design utilizing existing knowledge and the results of research, designing projects which satisfy known requirements, planning activity which attempts to achieve maximum economy and efficiency, construction according to plans and specifications, and operation and maintenance. In addition, civil engineers are always deeply involved and are frequently in charge of large-scale projects which involve many fields of activity and require the coordination of the efforts of individuals of a wide variety of backgrounds, such as urban planning, water resource management, and transportation systems. In general, Civil Engineering is a field of activity which is concerned with the public well-being through protection and control of our environment.

Electrical Engineering. Electrical Engineering deals with the engineering applications of electricity. Today, a wide variety of

School of Home Economics

machines serve mankind by performing many important and complex tasks. Modern communication systems, high speed computers and biomedical instrumentation are just a few of the creations of electrical engineers. Because of the diversity of the electrical engineering education, graduates are employed in sales, production, design, development, research, and management positions.

The undergraduate curriculum is designed to prepare each student for work in any of these fields and to serve as a basis for further specialization. As continued study after graduation is essential in this rapidly growing field, basic physical and systems principles are emphasized in the undergraduate program. Courses taken outside of the department in liberal arts and other engineering disciplines provide the students with a broader understanding of engineering and its relationship to other fields.

Industrial Engineering. The practice of Industrial Engineering consists of the application of scientific and engineering principles and methods to the problems of industry, government, and other organizational structures. The services of industrial engineers are utilized at all levels of an organization and the problems encountered often involve decisions related to the activities of several departments within an organization. The profession provides an excellent background for management positions.

The course work in the Department of Industrial Engineering covers a wide spectrum of subjects. Included are: operations research, production control, quality control and reliability, information handling and data processing systems. Studies in operations research include such topics as optimization, stochastic processes, simulation, decision theory, and game theory.

Mechanical and Aero-Space Engineering. Mechanical and aerospace engineers use the principles of dynamics, solid mechanics, fluid and gas dynamics, heat transfer, thermodynamics, and materials science together with mathematical and computer methods for application to research, development, design, and management in industry, government and engineering education.

Students may choose to major in either Mechanical or Aerospace Engineering. Mechanical engineers design and analyze a wide variety of systems in fields such as manufacturing, energy conversion, and transportation. Aero-space engineers design and analyze systems for aircraft and space such as propulsion, astrodynamical, and vehicular. Both curricula are fundamental and flexible so that students may prepare for either professional employment or graduate study.

Home Economics encompasses areas of study which apply the principles and concepts of fundamental arts and sciences to the physiological, psychological, social and economic environmental needs of man.

The School of Home Economics has five departments: Nutrition and Food (NF); Textiles, Clothing and Environmental Arts (TCEA); Management and Family Economics (MFE); Human Development (HD); and Home Economics Education (HEEd.). The letters in parentheses are area codes. Within these five departments the following undergraduate majors are offered:

- Dietetics and Institutional Administration
- Foods in Business
- Fashion Merchandising
- Child Development
- Secondary Education and Extension

The undergraduate program of the school, leading to a Bachelor of Science degree, emphasizes a liberal education in the sciences, arts and humanities with specialized instruction as preparation for professional careers. The transitional continuing relationships between liberal and professional education seek to develop in the student a disciplined mind, mental curiosity and professional competence.

Professional home economists are college and university graduates with bachelor's degrees in Home Economics. They serve individuals, families, and communities through schools and colleges, extension programs, business organizations of many kinds all over the world, community and government organizations and agencies, newspapers, magazines, radio and television. Representative types of activities include teaching, research, writing, dietetics, extension work, interior decoration, fashion merchandising, food consulting, food service management and product development.

Nutrition and Food. The curricula in the Department of Nutrition and Food provide courses in nutrition and food combined with a strong foundation in the Arts and Sciences with two majors, Dietetics and Institutional Administration, and Foods in Business.

Dietetics and Institutional Administration. This curriculum prepares the student for positions as therapeutic and administrative dietitians; teaching and research dietitians and nutritionists with public and private agencies.

The sequence offers opportunities for further work at the graduate level. This program is planned to meet the basic requirements of the American Dietetic Association for admission to approved dietetic internships.

Foods In Business. This curriculum is based on professional training in Nutrition and Food combined with other selected courses in Home Economics, the humanities, Western cultures, social sciences and business. The program is designed for the student who is oriented to the business world, and leads directly into development and promotion with food, equipment and utility industries. Positions are open in the field of communications for the student who combines her knowledge of Nutrition, Food and Equipment with Journalism, English, Speech, Television and Radio. Graduates with a major in this sequence are also placed in advertising and public relations agencies or with a consulting firm. This curriculum allows students to pursue graduate study.

Textiles, Clothing and Environmental Arts. A field of specialization in this area is entitled FASHION MERCHANDISING. The retailing and professional opportunities associated with clothing, textiles, home furnishings, and related merchandise are limitless. They include positions with manufacturers, producers, retailers, buying organizations, newspapers and magazines, radio, TV and consumer groups, as well as educational institutions and social and government agencies. The student who is interested in the business field pursues, by specializing in this area, a curriculum with a strong program of liberal arts emphasizing the social sciences. Courses which build on this foundation providing professional business competency include fundamentals of clothing, textiles, fashion, environmental arts, and interior design as well as courses in business, retailing and related subjects.

Human Development. The area of Human Development is of necessity interdisciplinary in nature. The program brings together knowledge from Psychology, Sociology, Anthropology, Anatomy, Physiology, Genetics, Nutrition, Education, and the Arts and relates it to Human Development and early childhood education. It is concerned with all maturational and environmental effects upon developing individuals, and with all theoretical and empirical descriptions of how this development occurs.

The undergraduate field of specialization in this area is entitled CHILD DEVELOPMENT. The child development program prepares the student for work in various types of programs serving young children, such as laboratory, public, and private kindergartens and nursery schools, headstart programs, clinics for exceptional children, hospital recreation programs and community and welfare agencies. Students qualify for a teaching certificate in the state of Massachusetts. In addition, the child development curriculum provides a good background for graduate work in various other child serving professions and for

graduate study in the science of human development.

Directed experience with the children of the laboratory school and their families and with children in specialized schools and clinics provides the opportunity for students to develop a sound personal philosophy of early childhood education and child development. More intensive specialization for qualified students may be obtained by the election of a one-semester affiliation with Merrill-Palmer Institute in Detroit, Michigan, which specializes in the study of human development and family life.

Home Economics Education. Home Economics Education is a field of study which is particularly sensitive to changes and conditions affecting homes and families. Like many other disciplines, Home Economics Education deals with several specialized areas: (1) Family Life Education; (2) Child Development; (3) Nutrition and Food; (4) Clothing and Textiles; (5) Management and Family Economics; (6) Housing, Home Furnishings and Equipment. Never before has the need for knowledge in the related root disciplines of Psychology, Sociology, Economics, and Chemistry been so apparent and so great. Thus, the undergraduate program in Home Economics Education combines a broad liberal education with professional preparation. This curriculum provides a good background for further work at the graduate level.

The graduate of Home Economics Education who possesses a keen knowledge and understanding of her field in addition to skills in human relations and the ability to motivate and implement creativity is greatly in demand by: (1) the secondary and post-secondary schools; (2) Cooperative Extension Service; (3) the agencies for international development; (4) Peace Corps, Vista and Urban Extension; (5) business.

A semester affiliation with the University of New Mexico or Merrill-Palmer Institute in Detroit may be arranged for students who meet necessary qualifications.

School of Nursing

The baccalaureate nursing program is designed to prepare the qualified high school graduate for a career in professional nursing, admission to a graduate program in Nursing, as well as for the responsibilities of family and community life.

A limited number of qualified Registered Nurses interested in completing the requirements for a bachelor's degree are admitted for full time study each fall.

In nursing, a profession of personal service, people are the focus and promoting health is the fundamental aim. The professional nurse provides a direct unique service to individuals and families, and, in addition, participates in the provision of the unique services with other health disciplines. The baccalaureate program in nursing provides opportunities for the student to gain a body of knowledge, skill and understandings appropriate to the practice of professional nursing. The scope of these learnings and the degree of skill in their application are such that individuals are enabled upon completion of the program to function effectively in beginning positions in a variety of nursing situations. These include the ability to provide competent nursing care to patients and families in the hospital, home and community; to participate with allied professional and citizen groups for the improvement of total health services to individuals and communities; to participate in organizing, planning and directing the work of nursing technicians and assistants. The baccalaureate program provides a foundation for graduate study in nursing and other disciplines, through which the nurse may become prepared for positions in a clinical specialty, teaching, supervision, administration, consultation and research.

Competence in professional nursing requires a comprehension of and the ability to apply scientific principles and techniques from the physical, biological, and behavioral sciences and a capacity to become therapeutically involved in a variety of human situations. Toward this end, the nursing program provides a solid foundation in the liberal arts. Baccalaureate nursing students share the intellectual and social stimulation of college with their fellow students from all other departments of the University. Nursing courses are major subjects within this general context. The program provides the opportunity for the student to develop individual interests and potentialities through elected and independent study.

With the use of a systematic problem-solving approach, the student learns to identify nursing problems, select and develop appropriate nursing intervention and evaluate nursing care in a variety of clinical and community settings. The clinical aspects of the program are concentrated in the junior and senior years,

when instruction and a correlated practicum are offered each semester under the guidance and supervision of the nursing faculty of the University. Clinical programming is accomplished through the utilization of the resources of the following cooperating agencies: The Springfield Hospital Medical Center, Wesson Memorial and Wesson Maternity, The Shriners Hospital for Crippled Children and The Municipal Hospitals in Springfield; The Cooley Dickinson Hospital in Northampton; the Northampton State Hospital; the Visiting Nurse Association of Springfield; the Springfield Health Department and other community health, educational and welfare services.

The Bachelor of Science degree, awarded upon completion of this program, qualifies the graduate for admission to the State Board Examination in Nursing. If achievement in these examinations is satisfactory, the candidate receives legal status as a registered nurse within the state and the legal right to practice as a professional nurse.

The program is accredited by the Massachusetts Board of Registration in Nursing and the Accrediting Service of the National League for Nursing.

PROGRAM SEQUENCE—FRESHMAN YEAR

First Semester		Credits	Second Semester		Credits
English 111	English Composition	2	English 112	English Composition	2
Chemistry 111	General	3	Chemistry 112	General	3
Sociology 101	Introduction	3	Zoology 101	Introduction	3
*Elective		3	Psychology 101	General	3
**Speech 101	Oral Communication	2	*Elective		3
**Nursing 100	Introduction	3	**Speech 101	Oral Communication	2
General Physical Education		0	**Nursing 100	Introduction	3
		—	General Physical Education		0
		16			19

* Elective chosen from: History, Government, or Economics. Students wishing to elect a foreign language may do so providing the basic requirement of the six elective credits indicated above is fulfilled prior to graduation. If the language is elected, intermediate proficiency is required.

** May be taken either semester.

School of Physical Education

The School of Physical Education includes the Departments of Physical Education for Men, Physical Education for Women, Recreation, and Athletics. It offers majors in physical education and in recreation. Other programs in the School include the general physical education program, the intramural sport program, and the intercollegiate athletic program.

General Physical Education Program. This program offers instruction in sport, dance, and other forms of physical activity to all undergraduate students in the University. Each student must fulfill a requirement through one of the following media: (1) by taking a one-semester, 2-credit course on a graded basis (2) by taking two semesters of 1-credit courses on a graded basis or (3) by taking either of the above options on a pass-fail basis.

One of the few certainties facing college graduates is that they will be continually faced with choices regarding physical activity. Burgeoning leisure time, increasing spectator interest in sport, increasing opportunity to participate in carry-over sports such as golf, tennis, bowling, and sailing, as well as jogging and fitness programs, and increasing exposure to concern of medical people, particularly cardiologists, about inactivity, insure continued contact with the idea of physical activity and sport.

Some students enter the University with a background that enables them to fully appreciate and achieve satisfaction from participation in a sport and/or physical activity program. However, others are limited by insufficient preparation at earlier age levels. The General Physical Education Program at the University offers (1) the opportunity for self-assessment in terms of skill competencies and fitness components and (2) the opportunity to gain the ability to assess and interpret a wide variety of programs involving sport and physical activity as they relate to the individual's well-being.

The student has almost unlimited choice in selecting his or her specific courses. This includes numerous sport skill courses, dance courses, conditioning course, as well as theoretical courses (classroom instruction and laboratory work) in which the student receives instruction in regard to the "why" of sport and physical activity. During the summer orientation period, each student takes a screening test in swimming which is used for diagnostic purposes. Swimming instruction may be recommended if the student cannot swim. The test is also used to determine a student's eligibility for various aquatic courses.

Majors' Program. The Department of Physical Education for Women and the Department of Physical Education for Men co-

operatively offer a co-educational program for those students who wish to pursue physical education as a major field of study. Two major options are available in the program. Students may elect to follow either the teacher education program or the related disciplines program which includes study in exercise science or the theory of sport. The teacher education option offers further opportunity for specialization. A student may select any one of the following concentrations: secondary education, elementary education or special education. Similarly, a number of concentrations are available through the related disciplines program. They are: dance, exercise physiology, kinesiology, sport history, sport psychology, and sport sociology.

Each student is expected to select his or her area of concentration during the second semester of the sophomore year. The first two years of study are essentially the same for all students majoring in physical education. During these two years the student will fulfill the University core requirements and the physical education core requirements. The only variances from one student's program to another will occur as a result of electives available within these requirements. The physical education core consists of the following courses:

Courses	Credits
PE 141—Human Anatomy Prerequisite: Zoology 101	3
PE 142—Kinesiology Prerequisite: PE 141	3
PE 278—Physiology of Exercise Prerequisite: Zoology 135	3
A student will select <i>three</i> of the following four courses:	
PE 200—Sociology of Sport and Physical Activity Prerequisite: Sociol. 101	3
PE 201—Psychology of Sport and Physical Activity Prerequisite: Psych. 101	3
PE 202—History of Sport and Physical Activity Prerequisite: History 100 or 101	3
PE 203—Philosophy of Sport and Physical Activity	3
Skills and Coaching Courses	*14
Total	*32

* Only 8 of the 14 credits in skills and coaching courses will generally be taken during the first two years. Thus the student actually completes 26 credits in the physical education core during the freshman and sophomore years.

The recommended program for these first two years of study is as follows:

<i>FRESHMAN YEAR</i>			
<i>First Semester</i>	<i>Credits</i>	<i>Second Semester</i>	<i>Credits</i>
English 111 English Comp.	2	English 112 Eng. Comp.	2
Speech 101 Oral Comm.	2	Elective	3
Electives (C, D, E) (Select 2)	6	Electives (C, D, E) (Select 2)	6
Zoology 101 Intro.	3	Zoology 135 Intro. to Physiology	3
PE Skills	2	PE Skills	2
	—		—
	15		16

Electives: Soc. 101 (D), Psy. 101 (D), Hist. 100 or 101 (C), Phil. 105 (C). These are prerequisites to Physical Education Core Courses.

<i>SOPHOMORE YEAR</i>			
<i>First Semester</i>	<i>Credits</i>	<i>Second Semester</i>	<i>Credits</i>
English 125 Mast. of West. Lit.	3	English 126 Mast. of West. Lit.	3
PE 141 Human Anatomy	3	PE 142 Kinesiology	3
*PE 200, 201, 202, 203 (Select any 2)	6	*PE 200, 201, 202, 203 (Select any 1)	3
PE Skills	2	PE Skills	2
Electives	3	PE 278 Phys. of Ex.	3
	—		—
	17		14

* The student must take 3 of these 4 courses during the sophomore year. They may be taken in any order provided the prerequisites have been met.

Recreation: The professional in recreation is a diagnostician of the leisure needs of people and a developer and provider of opportunities to meet these needs. He works primarily at the executive, administrative and supervisory levels, although a few settings involve more direct program leadership.

Options are available leading to a variety of careers in: voluntary youth-serving organizations, college unions, military establishments, municipal and other governmental agencies, and commercial and private enterprises; as well as in hospitals and

other institutions and agencies dealing with the ill, the handicapped, and other types of dependents. An option is also available in environmental interpretation.

The curriculum presented below represents a core program. After becoming familiar with the various career opportunities the student will consult with his adviser to select an appropriate option. He will then devote not less than eighteen of his elective credits to courses identified in the current departmental list for that option.

In addition to completing the curriculum as described below, the student is required to:

- 1). Devote one summer (minimum of six weeks) to a recreation position, preferably with pay, in a camp, playground, or similar setting approved by the Department.
- 2). Possess a Red Cross Advanced First Aid Certificate, or equivalent.
- 3.) Demonstrate proficiency in at least one program area.

<i>FRESHMAN YEAR</i>			
<i>First Semester</i>	<i>Credits</i>	<i>Second Semester</i>	<i>Credits</i>
English 111 English Composition	2	English 112 English Composition	2
Humanities & Fine Arts Elective	3	Humanities & Fine Arts Elective	3
Math. or Nat. Science Elective	3	Math. or Nat. Science Elective	3
*Arts & Sciences Elective	3	*Arts & Sciences Elective	3
Sociology 101 Intro. to Soc.	3	Psychology 101 Intro. to Psych.	3
PE 000 (Military or Air Science 111 1)	0	PE 000	0
	—	Speech 101	2
	14	(Military or Air Science 112 1)	1
			—
			16

Department of Athletics. Members of the athletic department are responsible for the conduct and administration of the various phases of the intercollegiate and intramural athletic programs at the University.

Department of Public Health

The curriculum in Public Health is designed to prepare qualified University applicants for health career opportunities or further study in environmental health sciences and community health and health education. The department also provides a course of study in Medical Technology. In addition, certain courses in environmental health, community health, and health education are available to students in other departments. Students are expected to follow the course sequence outlined below. A minimum of 32 major credits is required of all students for the Bachelor of Science degree. Some credits from other University departments are included in these major credits. The Master of Science degree is also offered in the Department of Public Health. (See Graduate Catalog for programs and requirements.)

Environmental Health (Public Health Option I). Designed to prepare for career opportunities or further study of environmental health sciences, requiring specific technical knowledge and competence.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
English 111	2	English 112	2
Speech 101	2	*Speech 101	2
**Math. 123 or 135	3	*Math. 124 or 136	3
Chemistry 111	3	Chemistry 112	3
Zoology 101	3	Zoology 135	3
Psychology 101 or Sociology 101	3	Sociology 101 or Psychology 101	3
General Physical Education	0	General Physical Education	0

* May be taken either semester.

** On basis of Placement tests and interest in advanced science.

If a language is elected, intermediate proficiency is required.

Community Health and Health Education (Public Health Option II). Designed to prepare for first level career opportunities or for further study in community health and health education requiring specific competence in community health analysis, program development and health education.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
English 111	2	English 112	2
*Speech 101	2	*Speech 101	2
**Mathematics 123 or 135	3	**Mathematics 124 or 136	3
Chemistry 111	3	Chemistry 112	3
Zoology 101	3	Sociology 101 or *Psychology 101	3
Psychology 101 or *Sociology 101	3	***Elective	3
General Physical Education	0	General Physical Education	0

* May be taken either semester.

** On basis of placement tests and interest in advanced science

*** Elective chosen from Humanities.

If a language is elected, intermediate proficiency is required.

Medical Technology. The program sequences outlined below are recommended for young men and women who are interested in the variety of career opportunities in medical technology. Medical Technology graduates may qualify for laboratory positions in hospitals, clinics, health departments, pharmaceutical firms, and medical research foundations. The course of study is intended also to prepare students for graduate level study.

There are presently two courses of study which a medical technology major may option in pursuit of a Bachelor of Science degree. Option I is open only to students who have received grades of C or better in all of their science and mathematics courses and who have spent a minimum of two years in residence at the University of Massachusetts. Transfer students must, therefore, elect Option II.

OPTION I. This curriculum will consist of a three-year academic program followed by a twelve-month internship in an approved school of medical technology. After successful completion of the twelve-month internship and after satisfying the requirements of the department, a student will receive a Bachelor of Science degree. A total of 130 credits is necessary for graduation with this option.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
English 111	2	English 112	2
***Speech 101	2	***Speech 101	2
Math. 111 (Introductory)	3	Math. 123 or 135 (Analytic Geom. and Calculus)	3
Zoo. 101 (Introductory)	3	Zoo. 145 (Human Genetics)	3
Chem. 111 (General)	3	Chem. 112 (General)	3
*Foreign Language	3	*Foreign Language	3
**or elective (Social Sci.) or General Physical Education	0	**or elective (Social Sci.) Medical Technology 101 General Physical Education	1 0

* If foreign language is elected, intermediate proficiency is required.

** Minimum of 9 credits in social science and minimum of 3 credits in humanities.

*** May be taken either semester.

OPTION II. This is a four-year academic program leading to a Bachelor of Science degree. Following graduation the student will be assisted in arranging for a twelve-month internship in an approved hospital laboratory school. The student must complete all of the requirements established by the American Society of Clinical Pathologists to qualify for the Registry of Medical Technology. A total of 120 academic credits is necessary for graduation with this option.

Students electing Option II should follow the Option I program for the freshman, sophomore and junior years.

Division of Military and Air Science

The Division of Military and Air Science includes the Department of Military Science and the Department of Air Science. Both departments offer Reserve Officer Training Corps (ROTC) commissioning programs that enable the University graduate to fulfill his military service obligation as a commissioned officer. Students who have completed a four-year or a two-year program may be commissioned in the respective services upon graduation from the University.

Students may register for the first course of the program at the same time they register for other University courses. No formal application is required. After successfully completing freshman and sophomore ROTC courses a student may enroll in the final two years of the ROTC program.

The two-year program requires that the student have two academic years remaining at either undergraduate or graduate level. A six-week field training period during the summer at a military installation is a prerequisite for these students. Those interested may apply during the two academic semesters preceding enrollment, since processing must be completed six months before the start of the fall semester. The two-year program is available to transfer students and students unable to participate in the four-year program.

Both departments offer both scholarship and non-scholarship programs. University tuition, fees, textbooks, and lab expenses, plus a stipend of \$50 per month, are received in the scholarship program. Non-scholarship students receive a monthly stipend of \$50 for the final two years of the four-year program, and for both years of the two-year program.

Participation in ROTC programs is voluntary. Uniforms and textbooks are provided and course credits apply toward graduation requirements to varying degrees depending on school of enrollment within the University.

Qualified students interested in becoming military pilots may participate in the Flight Instruction programs of the departments. Completion of a program leads to pilot qualification in Army Aviation or the Air Force. In addition to actual flight instruction, students take ground instruction in weather, navigation, and FAA regulations.

Students who have taken previous military training may have this experience credited toward all or part of the first two years of the four-year program. Individuals who had active military service, previous ROTC training, military school attendance, Civil Air Patrol training, or service academy attendance should consult the departments.

In their senior year students may request a delay in reporting to active duty in order to complete graduate work or a professional school. Credit for pay and promotion accumulates while an officer pursues graduate studies.

Department of Military Science. A program of general military subjects is presented by the Department of Military Science which qualifies the University graduate for a commission in any of the seven combat and seven non-combat branches of the United States Army. Thus, regardless of which academic major study program a student chooses, he will find appropriate lead-

ership opportunities open to him in the modern Army upon graduation and attainment of a commission.

The program consists of a basic course, Freshman and Sophomore year, and the advanced course, Junior and Senior year. During the basic course students are introduced to all phases of military science, and disinterested students may conclude ROTC instruction at any time in accordance with university policy. The advanced course provides instruction on Command and Staff, tactics and methods of instruction and prepares a student for his tour of active duty as an officer.

Cadets designated as Distinguished Military Students, by reason of their achievement in academic and military studies, may apply for a commission in the Regular Army. Students receiving a Reserve commission are required to serve only two years' active duty, the same as an individual drafted into the service under the provisions of the Selective Service Act. In addition to the normal four-year scholarship, a two-year scholarship program is offered by the Department of Military Science to qualified sophomores enrolled in the four-year program. The Professor of Military Science is responsible for the selection of students to receive the two-year scholarship. The same financial benefits apply to this scholarship program as to the four-year program.

In addition to the regular military subjects, various extracurricular activities exist for interested students. These include counterguerrilla and survival training, rifle team, and Scabbard and Blade, a National Military Society.

FRESHMAN YEAR			
First Semester	Credits	Second Semester	Credits
MS 111 U.S. Defense Establishment	1	MS 112 U.S. Defense Establishment	1
Fundamentals of Leadership		Fundamentals of Leadership	
National Defense Organization and Familiarization of Military Weapons		United States and National Security	

Department of Air Science. The Department of Air Science offers courses of general interest to the University student and of specific interest to male students who would like to prepare for and serve as officers on active duty in the U.S. Air Force. The curriculum is designed to study the need for military forces, the nature of military forces, their organization and mission with emphasis on the Air Force, and the nature of service as a professional Air Force officer. Courses encourage inquiry, analysis, critical thinking, imagination, and discerning judgment on the part of the student. A high degree of student involvement is also encouraged.

In the four-year program, the student enrolls in an Air Science course each semester and attends field training for four weeks between his sophomore and junior or junior and senior years. There are two major phases in the four-year program curriculum. The first phase is the General Military Course (GMC) which forms a single unit offered during the freshman and soph-

omore years. The studies cover the nature and causes of international conflict, the functions and employment of U.S. military forces, and the current prospects and trends toward world peace. These first two years carry no service commitment and the program is an excellent way for a student to study the military and decide if he wants to continue on for an Air Force commission. Enrollment in the General Military Course confers no military status on the student.

The second phase of the four-year program is the Professional Officer Course (POC), taken during the junior and senior years. Enrollment depends on medical qualification, certain test scores, and selection by the department. In the POC, academic concentration is on the preparation for service as an Air Force officer. Academically it deals with the development of airpower, aero-space power today, astronautics and space operations, Air Force leadership at the junior officer level, and a study of military management. Considerable emphasis is placed on developing the communicative skills needed by junior officers.

Corps Training is a non-academic, cadet planned and directed activity centering on military customs and courtesies, drill, and the career environment of the Air Force officer. Corps Training provides practical experience in leadership, with emphasis on development, both in seminar situations and on the drill field. Corps Training permits the student to plan and direct projects similar to those encountered on active duty.

Field Training during one summer involves a practical, first-hand experience with military life on an Air Force installation. The major areas of study are devoted to junior officer activities, aircraft and aircrew training, career briefings, survival training, Air Force base functions and environment, and physical training. Applicants for the special two-year program receive this training as well as the academics that four-year program students receive in their freshman and sophomore years.

Scholarships may be awarded to qualified students in the four-year program. Students compete for financial assistance grants as freshmen, sophomores, juniors, or seniors. Competition at the freshman level is initiated during the senior year in high school.

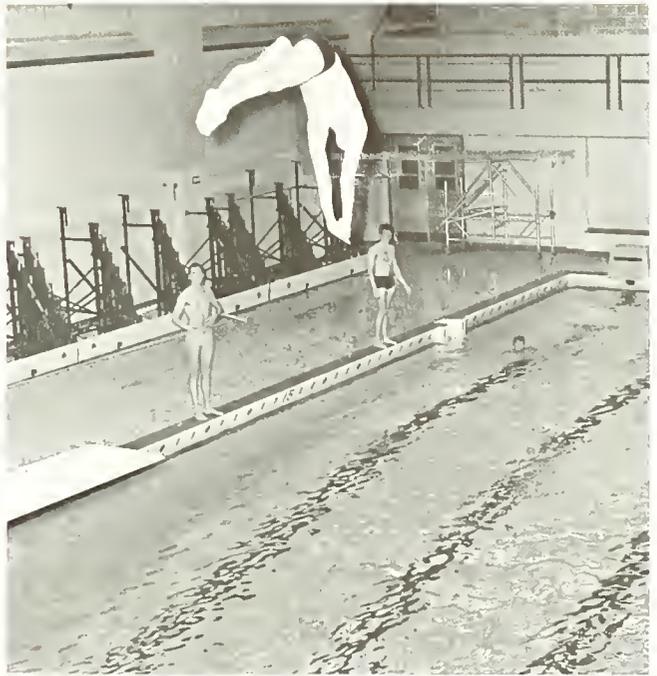
Extracurricular activities provide other opportunities. The Arnold Air Society is an honorary service organization that conducts activities which contribute to the overall objectives of the Air Force program. The Angel Flight is an Arnold Air Society auxiliary composed of young ladies who participate in service projects and serve as hostesses at University, civic, and AFROTC functions.

Completion of the Air Force ROTC program normally results in the awarding of a commission as a Second Lieutenant in the U.S. Air Force. The officer agrees to enter active duty and serve 4 years if commissioned as a Reserve Officer, or approximately 6 years if flying training is elected.

The following courses meet for one classroom hour and one corps training hour per week:

FRESHMAN YEAR

<i>First Semester</i>	<i>Credits</i>	<i>Second Semester</i>	<i>Credits</i>
Air Science 111	1	Air Science 112	1
War and National Power, Dept. of Defense and the U.S. Air Force		Strategic Offensive and Defense Forces	



Overseas Study



Freiburg Program. In cooperation with the University of Freiburg, Germany, the University of Massachusetts operates its year-long Freiburg Program, instituted in 1966. The University of Massachusetts has a permanent facility in Freiburg, the Atlantic Studies Institute, which serves as the headquarters of the Freiburg Program. Students enrolled in the Program are regularly enrolled students of the University of Freiburg, and take courses in a wide range of social science and humanities courses. The Freiburg Program is not restricted to students concentrating in German only, but admits students in philosophy, music, English, history, comparative literature and other fields.

Enrollment is limited to graduate students and superior upper division undergraduates with fluency in German. Students enrolled in other American colleges and universities may also apply. Candidates are expected to enroll in a special preparatory course and seminar which is offered in the spring semester, unless excused on the basis of language proficiency.

Cost for the two semesters in Freiburg, including transportation, is approximately equal to that of an academic year on the University campus.

Study In Bologna. The University sponsors a program of summer study in Bologna, Italy. The program begins in mid-June and ends in the last week of August. The program is staffed primarily by members of the faculty of the University. The curriculum consists of regularly scheduled University courses on subjects in which the Italian location contributes significantly to the student's understanding and experience. Field trips to major cultural centers in Italy are an integral part of the program. Any student in good academic standing at his college or university is eligible to enroll. He will be expected to take two of any of the three courses in the fields of Art, History, Italian, Government and



Music. Cost to the student will be approximately \$875. Enrollment is limited.

Madrid Summer Seminar. The University's program of advanced studies in Spanish literature is designed primarily for graduate students, but is open to well-qualified undergraduates who have completed a minimum of three years of college Spanish. The Seminar offers two graduate seminars and two advanced courses in literature and history of ideas, as well as one undergraduate course in art (taught at the Prado). Each course is given for three credits. Graduate students elect one seminar and one course, or two seminars; undergraduates take two courses. Classes are taught by prominent Hispanists from Spain or Latin America, and will be supplemented by a number of lectures on contemporary Spanish literature, music, and art. Integrated into the program, which will run from June 19–August 14, are three weekend cultural excursions and an optional, post-seminar tour of southern Spain. Students will be housed in selected Spanish homes. Cost to the student is \$905 (\$875 to Massachusetts residents).

Oxford Summer Seminar. A special group of courses in English literature will be regularly offered at Trinity College, Oxford during the months of July and part of August. The six-week session corresponds with the regular session on the campus of the University of Massachusetts and awards University of Massachusetts credit. But the courses are all taught by Oxford dons (current or past) and the Bodleian Library is available for extensive research. Graduate and undergraduate courses are offered and vary each year according to the availability of specialists at Oxford and the interests of students. Special evening lectures by noted authorities supplement these course offerings. Over-all cost to the student is \$820.

The Graduate School



Graduate work leading to the Doctor of Philosophy degree may be taken in the following fields: Agricultural and Food Economics, Agricultural Engineering, Animal Science, Anthropology, Biochemistry, Botany, Business Administration, Chemical Engineering, Chemistry, Civil Engineering, Comparative Literature, Economics, Electrical Engineering, English, Entomology, Environmental Engineering, Food Science and Technology, Forestry and Wood Technology, French, Geology, Germanic Languages and Literature, Government, History, Industrial Engineering, Mathematics, Mechanical Engineering, Microbiology, Nutrition and Food, Philosophy, Physics, Plant Pathology, Plant Science, Polymer Science and Engineering, Psychology, Sociology, Soil Science, Spanish, Wildlife and Fisheries Biology, and Zoology.

A cooperative Ph.D. program involving Amherst, Mount Holyoke, and Smith Colleges and the University is also available in all the departments of the biological sciences and the Departments of Chemistry, French, Geology, German, Philosophy, Physics, and Spanish.

The School of Education offers several specialized programs leading to the Doctor of Education degree for those employed in the educational field. The requirements for this degree follow closely those outlined for the Doctor of Philosophy degree except that in place of the foreign language requirement the candidate may demonstrate a mastery of fundamental statistics and computer language and operation. Residency must be met by attendance on campus for two consecutive semesters.

The following departments offer major work leading to a master's degree: Accounting, Agricultural and Food Economics, Agricultural Engineering, Animal Science, Anthropology, Art, Art History, Astronomy, Botany, Business Administration, Chemical Engineering, Chemistry, Civil Engineering, Computer Science, Dramatic Arts, Economics, Education, Electrical Engineering,

English, Entomology, Environmental Engineering, Food Science and Technology, Forestry and Wood Technology, French, Geology, Germanic Languages and Literature, Government, History, Home Economics, Industrial Engineering, Labor Studies, Landscape Architecture, Marine Sciences, Mathematics, Mechanical Engineering, Microbiology, Music, Nursing, Nutrition and Food, Philosophy, Physical Education, Physics, Plant and Soil Sciences, Plant Pathology, Polymer Science and Engineering, Psychology, Public Health, Slavic Languages and Literature, Sociology, Speech, Statistics, Wildlife and Fisheries Biology, and Zoology.

Holders of undergraduate degrees desiring further information should write for a Graduate School Catalog to: Dean of the Graduate School, Munson Hall, University of Massachusetts, Amherst, Massachusetts 01002.

Summer Session

The Summer Session at the University enables a student to earn almost the equivalent of a full semester's work in twelve weeks. The Summer Session is open to freshmen who wish to begin their college education immediately upon graduation from high school, thus making it possible to obtain a degree in three calendar years instead of the usual four. For students who plan to continue their education in graduate school or professional school, the Summer Session offers an opportunity to reach these goals earlier. This accelerated program provides some financial saving. Students who are in financial need are encouraged to make use of low cost loans to complete their education.

Students who begin their college careers in the summer are advised to plan their programs carefully with the aid of their advisers. Normally, it is wise to plan to take the required courses during the summer, and to take electives and major courses during the fall and spring semesters. Sequential required courses are generally offered during both of the main semesters, so that work begun in the summer can be completed during the fall semester. Similarly, work begun in the spring semester can in most cases be completed in the summer following.

The Summer Session also serves the needs of other groups. Students who are currently enrolled in other colleges can come to the University to do college work in the summer. Graduate students are offered courses which enable them to continue their education through the calendar year. Professional workers are offered courses in their specialized fields. A bulletin describing the entire summer program is available from the Registrar's Office early in March of each year.

Five College Courses

Amherst, Mount Holyoke and Smith Colleges and the University of Massachusetts have for some time combined their academic activities in selected areas for the purpose of extending and enriching their collective educational resources. They have been joined by newly-established Hampshire College. Certain specialized courses not ordinarily available at the undergraduate level are operated jointly and open to all. In addition, a student in good standing at any of the institutions may take a course,

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without cost to the student, at any of the others if the course is not available to him on his own campus and he has the necessary qualifications. The course must have a bearing on the educational plan arranged by the student and his adviser. Approvals of the student's adviser and the Academic Dean of the College (Provost at the University) at the home institution are required. Permission of the instructor is required for students from other campuses if permission is required for students of the institution at which the course is offered.

Students should apply for interchange courses at least six weeks prior to the beginning of the semester since they may find some courses already filled after that time. Free bus transportation among the institutions is available for interchange students.

Students interested in such courses will find current catalogues of the other institutions in departmental offices, the Library, and the Office of the Registrar. Application forms may be obtained from the Office of the Provost.



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Gifts and Bequests

For the information of those who may wish to make a gift or a bequest to this University, the following suggestion is made as to a suitable form which may be used.

There are a number of worthwhile activities of the University which are handicapped by lack of funds and for which small endowments would make possible a greater measure of service to our students and to the Commonwealth. The religious work on the campus is an example. This is now carried on in a limited way by private contributions. Further information concerning this and other activities in similar need will be gladly furnished by the President.

Suggested Form

"I give and bequeath to the Trustees of the University of Massachusetts, the sum of.....dollars,"

(1) (Unrestricted)

"to be used for the benefit of the University of Massachusetts in such manner as the Trustees thereof may direct."

or (2) (Permanent Fund: income unrestricted)

"to constitute an endowment fund to be known as the Fund, such fund to be kept invested by the Trustees of the University of Massachusetts and the income used for the benefit of the University in such manner as the Trustees thereof may direct."

or (3) (Specific Purposes)

"to be used for the following purposes,"

(Here specify in detail the purposes.)

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All correspondence concerning the *Amherst Campus* should be addressed to the appropriate office, University of Massachusetts, Amherst, Massachusetts 01002.

All correspondence concerning the University of Massachusetts at Boston should be addressed to: 100 Arlington Street, Boston, Massachusetts 02116.



1969-1970 GENERAL INFORMATION



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University of Massachusetts
Amherst, Massachusetts 01002